CBX vs. GS1100: LIGHTNING STRIKES TWICE

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CYCLE GUIDE

KAWASAKI Z1-R: First test of the revived, revised café cruiser

MAICO 450 & 400 MX Compared: Separate strategies for Open warfare

The ***REAL*** Story

SUZUKI GS1100

Alone in a Fast Crowd

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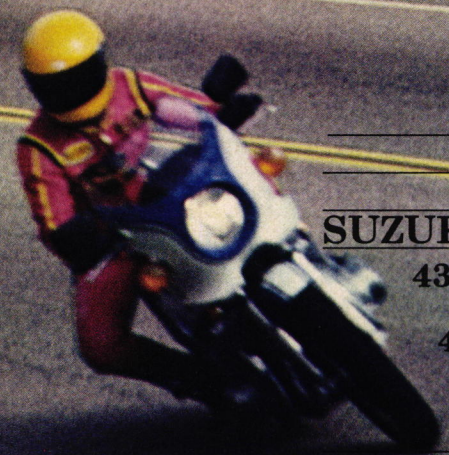

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QUOTE:
"A motorcycle is just like a jetfighter with a barn door nailed to its nose."
—pg. 68

COVER:
Robin Riggs stalked the wild GS11 and shot it in repose with his sneaky Sinar, the coward.

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Cycle Guide's Cycle Guide

OFF-ROAD

MAKE & MODEL	ISSUE	ENGINE TYPE	WHEEL TRAVEL, IN. FRONT/REAR	WEIGHT, LBS	HORSEPOWER @ RPM*		GEARS
Can-Am 175 Qualifier	Aug. '78	Two-str.	7.7/7.1	234	16.4	9000	6
Can-Am 250 MX-5	Jan. '79	Two-str.	10.8/10.0	218	32.1	8500	5
Can-Am 250 Qualifier III	Feb. '80	Two-str.	9.7/9.8	230	25.2	8000	6
Honda CR125R	Jan. '80	Two-str.	11.5/10.8	202	20.8	10500	6
Honda CR250R	May '79	Two-str.	11.8/11.0	220	27.7	7500	5
Honda XL185	March '79	Four-str.	7.4/6.75	239	11.2	7500	5
Honda XL250S	Oct. '78	Four-str.	7.8/7.7	262	14.8	8000	5
Honda XR185	March '79	Four-str.	8.0/7.75	221	12.8	10000	6
Honda XR500	May '79	Four-str.	8.5/8.6	273	25.8	6500	5
Husqvarna 125CR-'80	Nov. '79	Two-str.	11.8/11.8	214	18.8	11000	6
Husqvarna 250CR	Dec. '78	Two-str.	11.8/11.8	227	24.3	8500	6
Husqvarna 390CR	Jan. '78	Two-str.	9.6/10.0	234	29.3	6000	6
Husqvarna 250WR	Aug. '79	Two-str.	9.5/9.5	238	21.9	6500	6
Kawasaki KLX250	Sept. '79	Four-str.	9.8/10.5	239	15.2	8500	5
Kawasaki KX125 A5	Oct. '79	Two-str.	9.8/10.0	194	20.0	11000	6
Kawasaki KX250 A5	June '79	Two-str.	11.0/10.9	219	27.9	8000	5
Maico 400 Magnum	July '78	Two-str.	10.0/9.8	226	30.2	6500	5
Montesa Cappra 414 VE	Oct. '79	Two-str.	10.9/10.7	236	28.5	6500	4
Suzuki PE175	Aug. '78	Two-str.	8.8/9.4	216	11.2	9000	6
Suzuki RM125T	Dec. '79	Two-str.	11.2/11.7	200	19.8	10500	6
Suzuki RM250N	May '79	Two-str.	11.2/11.8	218	27.1	8000	5
Suzuki RM400N	Sept. '79	Two-str.	11.2/11.8	229	28.1	7500	5
SWM 175 ISDT	Aug. '78	Two-str.	10.0/10.0	220	17.3	9500	6
SWM 250 MX	Nov. '78	Two-str.	10.0/10.0	216	29.5	9000	5
Yamaha Pro-Tec 600	Nov. '79	Four-str.	10.5/10.1	262	46.2	6500	5
Yamaha IT175F	Aug. '78	Two-str.	7.2/7.2	217	15.7	9000	6
Yamaha IT250G	Dec. '79	Two-str.	9.8/9.8	244	27.7	8000	6
Yamaha YZ250G	March '80	Two-str.	11.2/11.6	217	29.6	8000	6
Yamaha YZ400F	Feb. '79	Two-str.	10.7/10.4	226	36.9	7000	5

*Horsepower shown is taken at the rear wheel and does not account for transmission losses between the engine and rear wheel. These results may differ from manufacturer's claims or from results obtained using a different dynomometer.

STREET

MAKE & MODEL	ISSUE	ENGINE TYPE*	QUARTER-MILE, SEC./MPH	TOP SPEED, MPH	WEIGHT, LBS	FUEL CONSUMPTION, MPG	STOPPING DISTANCE FROM 60 MPH, FT.
BMW R80/7	Oct. '78	2C	13.47/97.9	104	442	38-46	138
BMW R100T (Dressed)	Aug. '79	2C	13.81/92.9	119	521	38-53	142
Ducati Darmah	Sept. '78	90-deg. 2D	13.41/97.5	118	487	25-40	120
Dunstall-Suzuki GS1000 CS	July '79	4A	11.32/117.0	154	488	37-.5	124
H-D CLE Sidecar	Sept. '79	45-deg. 2D	17.60/69.3	91	1036	25-35	181
Honda CB400T Hawk	March '80	2B	14.37/88.6	100	391	51-65	139
Honda CX500	Feb. '78	80-deg. 2E	13.86/93.4	106	449	28-50	134
Honda CX500 Custom	Aug. '79	80-deg. 2E	14.12/92.9	102	468	44-51	146
Honda CB650	Feb. '79	4A	13.29/99.9	113	447	37-51	131
Honda CB650 Custom	Dec. '79	4A	13.10/99.8	113	447	44-52	131
Honda CB750F	Oct. '79	4A	12.41/106.8	128	524	31-52	135
Honda CB750K	Nov. '79	4A	12.77/105.8	124	525	38-52	130
Honda Interstate	March '80	4C	13.40/96.0	121	718	33-45	146
Honda CBX	Dec. '79	6A	11.86/114.5	130	555	19-36	145
Kawasaki KZ650 Custom	May '79	4A	13.16/100.2	116	483	45-49	125
Kawasaki KZ1000 MkII	April '79	4A	12.06/110.3	130	545	34-46	129
Kawasaki KZ1000 ST	April '79	4A	12.23/111.0	132	574	38-45	130
Kawasaki Z1-R	Nov. '78	4A	12.21/109.9	130	541	31-47	133
Kawasaki KZ1300	March '79	6A	11.79/115.7	140	664	31-39	133
Laverda 1200 Jota	Dec. '78	3A	12.54/105.0	121	518	29-37	145
Suzuki GS425N	March '79	2B	14.59/88.8	NA	382	45-55	NA
Suzuki GS750EC	July '78	4A	12.57/105.6	120	509	31-47	133
Suzuki GS750LN	Sept. '79	4A	12.87/103.5	120	526	41-50	129
Suzuki GS850N	March '79	4A	12.81/104.0	116	566	35-45	153
Suzuki GS1000EC	Nov. '78	4A	12.15/110.9	131	520	31-49	126
Suzuki GS1000LN	June '79	4A	12.39/108.4	130	526	39-50	129
Suzuki GS1000S	July '79	4A	12.43/110.0	132	539	39-45	124
Triumph Bonneville	Dec. '78	2B	13.41/96.2	110	414	42-49	NA
Triumph Bonneville Special	July '79	2B	13.94/96.2	110	411	45-55	175
Yamaha RD400F	June '79	Two-str. 2B	14.16/90.18	98	355	30-43	129
Yamaha SR500E	April '78	1B	14.98/84.2	92	364	49-58	132
Yamaha TZ750E	April '79	Two-str. 4A	11.62/125.5	180	331	NA	NA
Yamaha XS850LG	Feb. '80	3A	13.10/101.7	116	548	42-55	144
Yamaha XS1100F	Nov. '78	4A	12.12/111.9	134	573	29-47	136
Yamaha XS1100SG	Jan. '80	4A	11.94/112.6	135	572	42-47	129

*A-Transverse Vertical, B-Vertical, C-Horizontally Opposed, D-Tandem Vee, E-Vee

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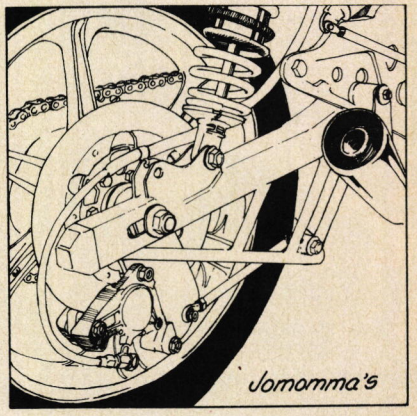

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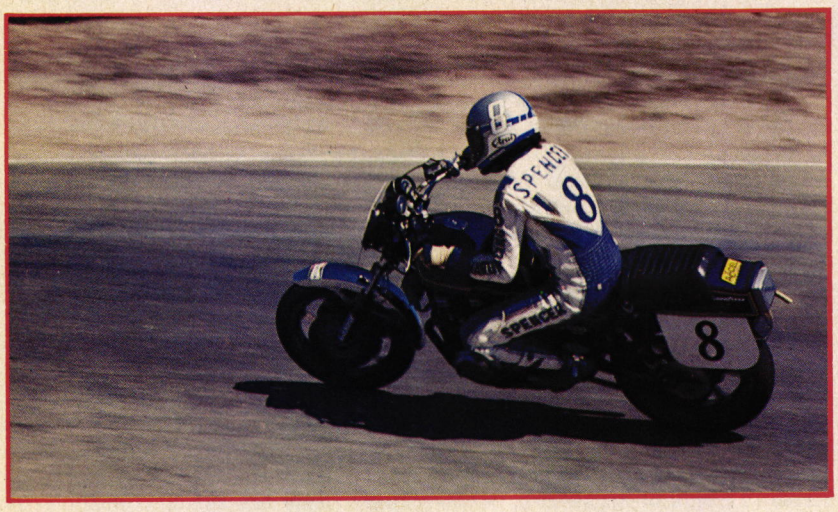

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Editorial

Finding the Limit

Every motorcycle makes us ask one important question

• You'll notice that when we test motorcycles around here, we talk a lot about racetracks. Sure, when we evaluate a street bike, we carefully distinguish the design priorities that make a great street bike from those that make a superior race bike. But then we'll go out and flog the motorcycle around the track anyway. At least when we test a motocross bike, we tell you up-front that its ability to win races is the only thing that matters.

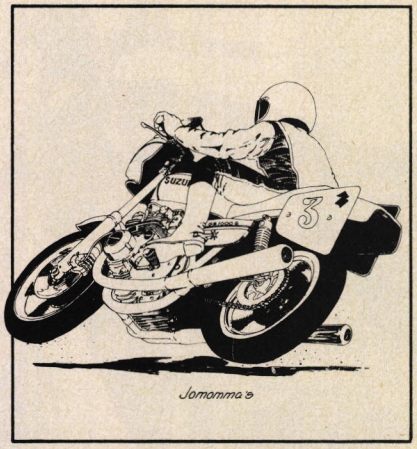
Actually, we're sure you notice our fascination with a bike's behavior at the ragged edge of control because you write us letters and call us on the phone to ask about it. After all, you ask, how many people actually seek their motorcycle's limit in everyday use?

We have only one fact to offer as a defense. Every motorcycle poses the same question in the enthusiast's mind—"What'll she do?" The very nature of the beast demands an answer to this question. And we want to make sure that we have all of the answer, not just a part of it.

Certainly, we think the way a motorcycle looks is extremely important. We're also sensitive to the way a motorcycle is tailored to fit the specific needs of its particular audience. Yet we spend most of our time plotting a bike's performance envelope—that is, the things that it does and the way it does them. Among other things, it requires a careful assessment of a bike's comfort quotient and ease of operation. It also means winding it as tight as it will go.

We're not the only people who believe that a bike's goodness can be determined in part by extending it to the limit of its capabilities. Whenever Technical Editor David Dewhurst and Editorial Assistant Dean Taylor arrive at a motocross race with a van full of test bikes, they find a lot of other people engaged in the exploration of their motorcycle's performance potential, not to mention their own. The same holds true when Managing Editor Larry Works and Associate Editor Dain Gingerelli arrive at the roadraces. These grass-roots enthusiasts regard the question "What'll she do?" with deadly seriousness.

The motorcycle manufacturers are equally fascinated with the answer to this question. You may have thought that bikes were developed in test tubes for an extremely limited range of circumstances. But nothing could be further from the truth, for the engineers understand that a bike's identity is built upon its ability to cope with a wide range of experiences.



Motorcycle manufacturers, for example, employ test tracks just like their automotive counterparts, but they are nothing like the oceans of featureless asphalt you see in Detroit. Question Japanese motorcycle engineers closely about the origins of their twisting, high-speed road circuits and you'll learn that they were built to develop world-beating GP roadracers. Suzuki was the first to do so in the early Sixties with its Ryuyoo facility. Honda followed suit with a track at Suzuka while Yamaha constructed one of the foremost roadracing tracks anywhere for its own use.

As a result, Japanese street bikes must live up to demanding parameters of behavior in the development process. Whether it is intended or not, the use of a racetrack as an engineering tool significantly alters the final product. Though Japanese roadbikes are tested every day on ordinary streets, crowded traffic insures that the crucial shakedowns occur on the racetrack. And if a bike has a flaw that relates to your ability to control it, the racetrack will find it out. That's one reason why Hisao Uchiyama, Suzuki's Director of Engineering, personally rides every prototype around Ryuyoo.

Dirt bikes are no different, for it's no secret that they are designed to cope with exacting standards of behavior. Husqvarna and Maico have built their reputations upon production-bike replicas of the motorcycles they race on the GP circuit. And while the Japanese manufacturers use test tracks (Yamaha even has built a forest trail to test IT models), competition determines the direction that development will take.

The benefits of such rigorous engineering manifest themselves throughout the range of dirt bikes. Suzuki's low-tech, high-grins DS playbikes incorporate hardware and design philosophies developed on early RM motocrossers. And according to a man who once rode Honda's works trials bike, Marland Whaley, some of the pieces created for his prototypes appeared later on the XL-series dual-purpose machines. In addition, every manufacturer devotes some of its brightest engineers to racing programs, hoping that some of the habits of mind, if not the hardware itself, will find its way to showroom models.

Clearly, there's a strong link between the racetrack and the everyday motorcycle, partly in the engineering sense, partly in the way they both suggest that performance defines a motorcycle more completely than its styling or convenience features. The question "What'll she do?" is a pervasive if unspoken measurement of nearly every motorcycle ever built.

So you can see that from the moment a bike's blueprint is drawn, it is expected to be ridden, if only once, to the very limits of its ability. That's the same kind of thinking that makes motorcycles different from automobiles. The motorcycle is an instrument of high performance, affording you the opportunity to find the limits of your own skill as well as those of the machine.

So when this magazine tries to determine the outer limits of a bike's performance envelope, we figure that we're providing you with a guidebook to territory you will explore sooner or later. And with some motorcycles, mostly street bikes, it's safer to chart the unknown on the racetrack than in uncontrolled conditions.

We don't publish pictures of peg-dragging street bikes or handlebar-dragging dirt bikes just to flaunt our riding skills. Instead, we understand that motorcycle evaluation is a test of performance, not just a discussion of specifications. That philosophy requires some 10,000-mile evaluations for street bikes, at least three long days on the motocross track, and 1500-mile road tests. Everyone involved with a motorcycle, from the designer on down, cares most about the same kind of question "What'll she do?" What does it *feel* like? How far can you take it? And that's what we try to deliver.

We're certain that putting some bikes on the racetrack is a logical extension of the question "What'll she do?" So if you wonder why we take such pains to find the ragged edge, now you'll know why. Of course, it's okay if we have a little fun at the same time, right?

—Michael Jordan

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SUPERBIKE TUNING MANUAL

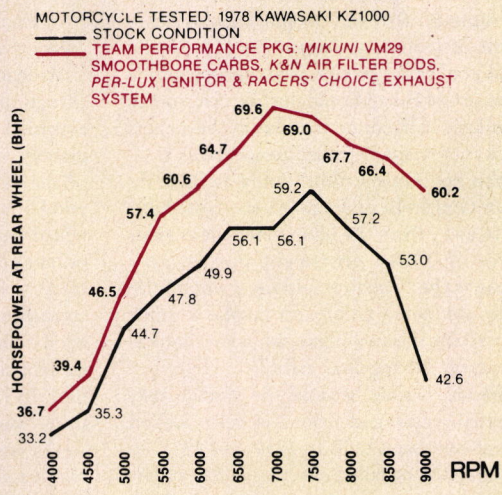
WHAT IS IT? *and what does it mean?*

The TEAM PERFORMANCE SUPERBIKE TUNING MANUAL is a dramatic new concept in evaluating high performance products by documenting and focusing on the mutual relationship and compatibility of one product to another by the use of expert tuning and dyno testing. Our objective is to promote and substantiate the performance capability of "TP" products both singly and together.

The Team Performance Advisory Staff will monitor and chart exactly how a particular superbike performs on the dyno: horsepower and torque curves, engine temperatures, air density and humidity, etc. Then Team Performance will demonstrate conclusively how each product works independently of the others and in unison.

Recommendations on spark plugs and heat ranges, Mikuni tuning and jetting information, tire selection and wear, drive chain maintenance, air filtration flowmetrics, combustion characteristics — fuels, additives. In other words, a step-by-step tuning procedure to set-up a superbike to the exact performance and maintenance standards that the enthusiast and his much worn pocketbook can handle.

The "TP SUPERBIKE TUNING MANUAL" will contain tests on the most popular superbikes, however, the almanac of knowledge contained in the manual will serve as a universal guideline for the enthusiast irrespective of what motorcycle or whose aftermarket products he may choose.


MOTORCYCLE TESTED: 1978 KAWASAKI KZ1000
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33.2 36.7 39.4 46.5 57.4 60.6 64.7 69.6 69.0 67.7 66.4 60.2
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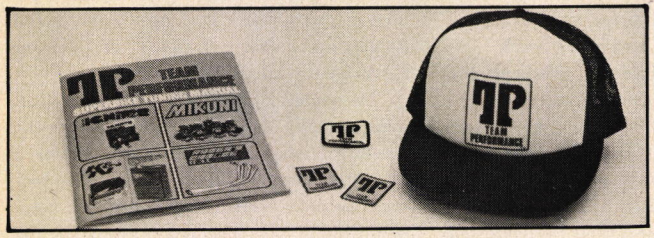

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Thompson At Large

Got Them Big-Bike No-News Restoration Blues

Six months, and no cure in sight

• I always thought that restoration, like accidents, was something that happened to other people. You know, *rich* people. Old guys with collector mania, young guys with marque fever. But not to me. After all, in order to go restoration-crazy, you had to have the thing to restore. And what did I have? *Nada. Nichts.* Only a Yamahopper, some test bikes and—

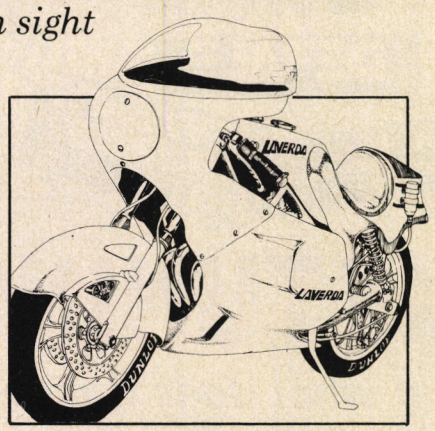
Oh yeah. The Yellow Peril.

Well. But that was *different*, see, because that was my old '71 Norton Commando Production Racer, sold in a moment of desperation in 1973 and bought back in a moment of foolish optimism six years later. How could that be like, well, like a genuine Classic Old Bike? Could putting the Norton that I got in the crate that day at the airport back into shape be called restoration?

You bet. Only I didn't know it then. As Dain Gingerelli and I pried the homebuilt crate away from the bike under the curious gazes of TWA's air-freight people, all I thought the Norton would need was a little clean-up, some paint and maybe a quick trip to Dr. Dean's clinic for a mechanical check-up. No big deal, right?

Wrong. Wrong because the Norton that gradually emerged from the crate looked like it had been built in 1917, not 1971. In place of the dazzling chrome-yellow superracer that my partner and I had rolled out of Gus Kuhn's shop in London on a foggy Saturday morning in 1972, the bike bolted into that crate was semi-silver, semi-gray, semi-primer and semi-rust. A fork tube was worn through where a defective seal had been allowed to eat away at the chrome. The frame was covered in the indestructible brownish grunge that only a constant mist of hot Castrol R can make. Electrical connections languished under layers of corrosion. The swingarm's paint was almost nonexistent. And the same sense of taste that had led the previous owner to mate a nondescript Corvette gray with the sensuous lines of the Commando also had led him to paint the pipes flat-black, in the best 1973 café racer fashion. And the engine . . . well, *it* didn't bear thinking about.

I was stunned. Gingerelli diplomatically was silent, having heard on the way over how much I had paid to recapture the bike that had ended my racing career. We stared at the thing standing there on its wobbly centerstand amidst the ruins of the crate, and I knew. I knew that at last, I was going to face *Restoration*. There was no way I alone could hope to undo the work of six



New England winters and the neglect of an owner with other things to do.

We loaded up the bike—silently, for some things are best left unsaid—and as we rumbled down Century Boulevard, the gloomy, violated Norton swayed in the back of the El Camino like a threat from God, and I gulped. Because I'd known a few guys who'd lusted after some antique car, plane or bike and finally had scraped together the bucks to buy it. Then I'd watched, horrified, as each man went through the same silent agony: the depression on first seeing the ramshackle device, the brain-racking to find the Right Restorer, and then the worst part—the remorseless passage of days, weeks and months as nothing, seemingly, happened to his investment. Hopeful visits to the shop, ending in promises of work to be done and reassurances that the bill really won't be *that* big.

But I knew I had no alternative. If you're not very good with tools, not terribly patient with spray guns and sandpaper, if you'd rather ride it than wrench it, there's really no choice. So I aimed the El Camino towards Costa Mesa, and Brian Slark.

Slark is English, and totally dedicated to motorcycles, their perfection, improvement and . . . restoration. An expert in matters Norton and Triumph (having held positions of substantial responsibility in each of those gloriously ill-fated firms), he was the ideal choice to give the Yellow Peril another lease on life. *But*. But the job would still be . . . R-E-S-T-O-R-A-T-I-O-N. Or would it?

It would. We unloaded the wretched Norton, fairing a-dangle, in back of Slark's tiny but complete workshop in one of those endless California "industrial condominium" complexes, and as Brian's impeccably blue British eyes flicked over the weary carcass of the 750, I began to sweat. It wasn't because of the merciless SoCal sun. It was because . . .

"Hmmmm. Bit ragged at that. Looks like it'll take quite a bit of work, Steve my lad. Let's have a look at the frame."

Right. Because of *that*.

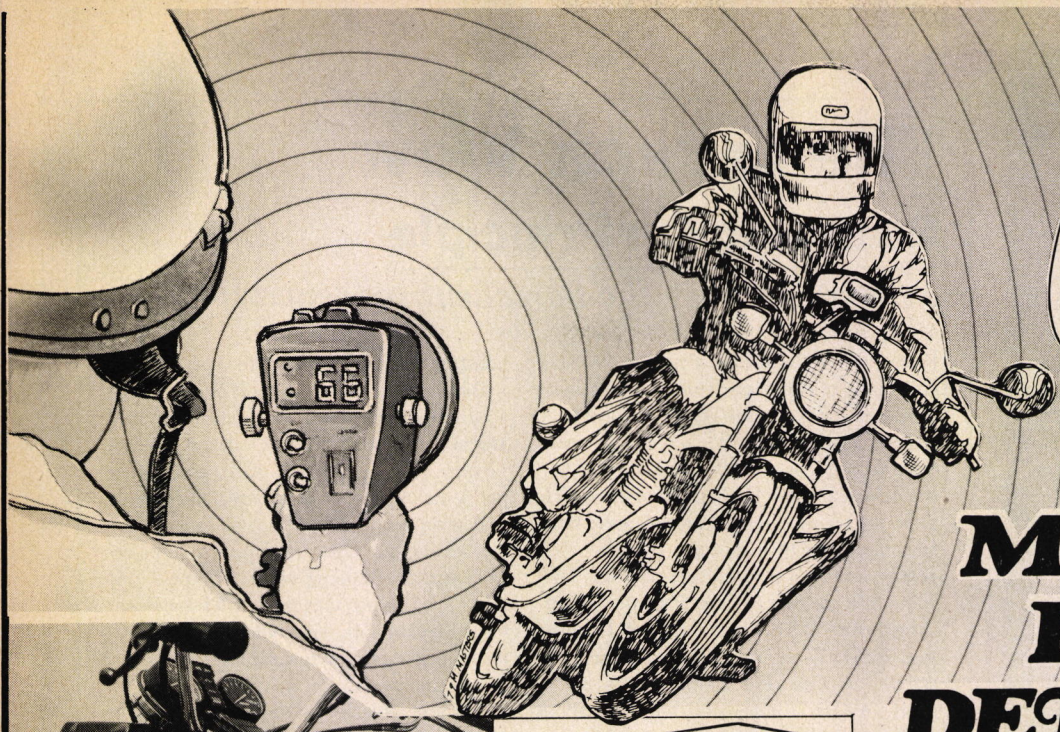
In the following minutes, the sun darkened, I felt the years conspire to age me and I saw my meager bank account wither and die. Brian continued ticking off the deficiencies, relentlessly. "Can't replace the header pipes, y'know. Stopped making them in '73 since they were just for the production racer. So we'll have to have them rechromed, saw off the old silencers . . ." And on and on. I nodded numbly when he reassured me that everything would be all right, then I climbed into the truck and drove home like an unplugged robot. I threaded the freeway needle thoughtlessly, everything spinning inside. I was going to be a victim of Restoration Madness. And there was no way out.

That was six months ago. Early on, I checked with Brian once a week to monitor progress. But in his kind, thoughtful British way he finally persuaded me to stop bugging him. Things would get done. But *properly*, don't you see. There was the dash panel to remake, the oil tank to repair and so on. I finally stopped calling weekly. For a while, I called once a month. And then I finally realized the truth, and stopped calling altogether.

You see, he's got his kind of time—Restorer Time, in which he'll lovingly take a week to install the engine ("Shims have to be spot-on, you know.") And I've got my time. It started out as Nervous Owner Time, then became Resigned Customer Time and now, finally, it's Co-Restorer Time. I've learned how it works, and I no longer worry about approximate delivery dates for parts or ETAs for the finished bike.

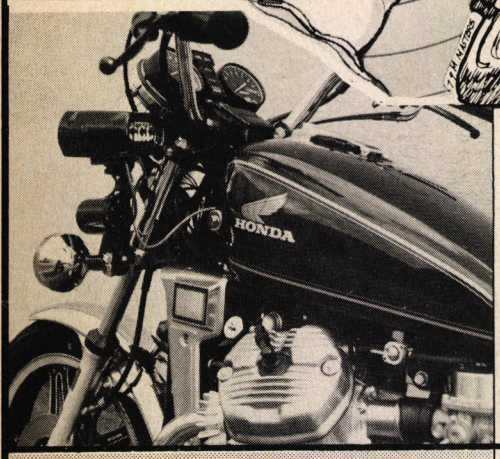
The secret is that while any machine, even a classic, can be manufactured in the non-involvement of an assembly line, only a craftsman can rebuild it like new. No—better than new, *perfect*. Not the way it actually came off the line, but the way the designer *wanted* it to come off. I know all that now, and I don't begrudge Brian his Restorer Time. So even though Brian hasn't called, even though the last time I saw the Yellow Peril it still consisted only of a breathtakingly shiny frame and a spotless engine supported by a milk crate full of the other bits, even though I'm sure the bill from the chrome guy alone will make my wife weep, I'm glad, ultimately, that Restoration has happened to me.

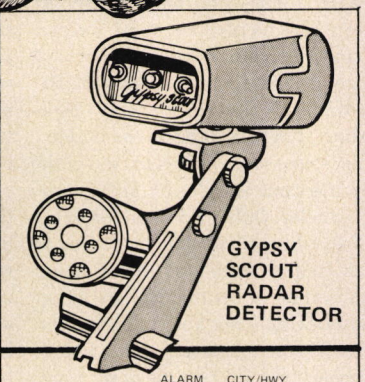
I think. —*Steve Thompson*



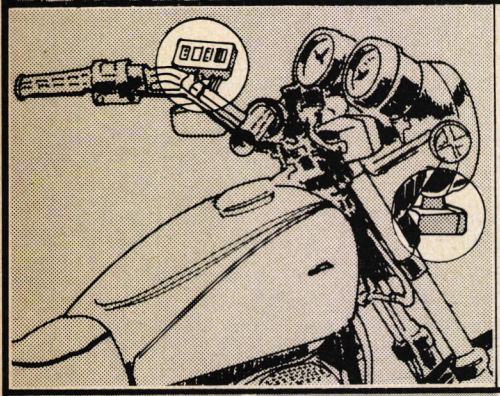
Gypsy Scout T.M.

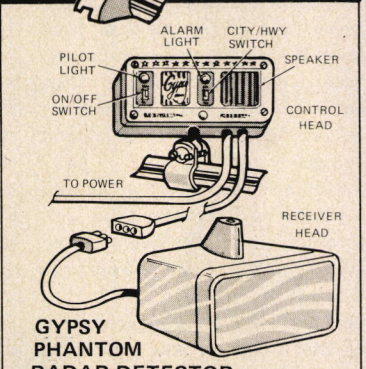
Motorcycle RADAR DETECTORS





GYPSY SCOUT RADAR DETECTOR





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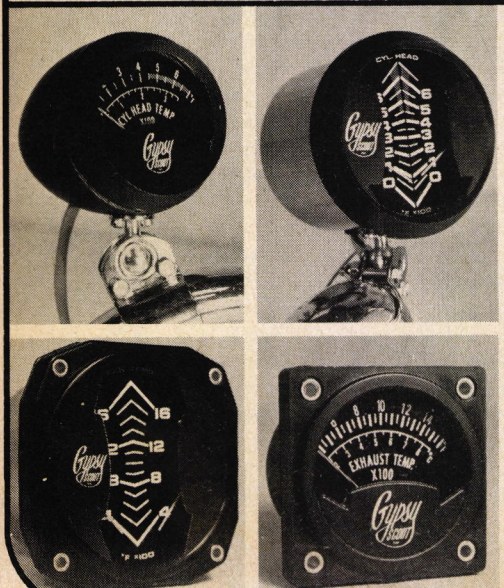

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The Larson View

Standing On Principle

Revelations from the BarcaLounger generation.

• My friend Ralph has a new three-piece suit made of some unidentifiable synthetic fabric, and it looks too styled to have been bought around here. So it probably came from Atlanta, and I'll bet he made the trip just to buy himself the right kind of suit. He gives me sound financial advice, and on occasion, we do a little business together. He's gotten a bit paunchy, too, in the way that some men in their middle 30s have of "settling down." It's time for the BarcaLounger and football on Sundays with the two-point-four kids. For Ralph, life is pretty good—about B-plus—and he's just about made it to where he planned to go. Everything around him plainly says so. And when he walks me to the door for a farewell, he knows instinctively that the moment I pick up my helmet, I'm making a statement, too. Furthermore, he knows he has to deal with it. We are the same age, Ralph and I, and not too dissimilar. Only I ride a motorcycle.

Now, I should explain that there was a time when Ralph's style—by that I mean the rough outline of his life, the attitudes and accouterments—was absolute no man's land to me. There was no way that I would lose whatever it was that set me apart from Ralph's style. His way bespoke acceptance, a willingness to embrace the values of the generation before him. You'd be perfectly justified if you figured that I can't stand Ralph—but you would be wrong.

As he walked me to the front door, he said just what I knew he'd say; something like, "Oh, a motorcycle, huh? You like it?" And then the clincher, "You know, I used to have one, but I gave it up."

He gave it up. Like it was cigarettes, or something that's bad for you, something you give up after you settle down. But the thing about me and Ralph is that I understand perfectly what he means when he says he "gave it up." What he really means is he changed.

If he cared enough, or knew me better, he could look square at the Honda and see some changes in me, too. The bike doesn't stay shined much anymore, and when it's parked these days, it rests on its sidestand.

The day I started using the sidestand, I felt no stirrings, at least not at first. But later, when it hit me, the realization made me feel old. What was worse, I couldn't even remember why using the sidestand was anathema. I suspect it came from some occasion way back in the past, when someone who sounded like he knew impugned the use of sidestands—as a point of style. And I have to confess that I used to be pretty unquestioning about things like that.

Bicycles have sidestands. When you park your motorcycle on its centerstand, you reaffirm to yourself that, by God, this is a *motor*cycle, this is the U.S. of A., and you're not going to pedal to get where you're going.

It even may be true that sidestands are less stable, that the centerstand is more resistant to collapsing when bumped, but we're not dealing with the truth here. What we're dealing with is a whole catalog of attitudes, and not just toward sidestands but toward motorcycles and style.

In those days, I wanted to look right, particularly when I was new to riding; looking like a novice is awful when you're surrounded by the experienced, particularly in motorcycling. From the first day, you want to perform in fluid motions, without wobbles, every action practiced. Even the simple act of parking took on great import. As time went by, I worked up to quite a sweep in my arrivals, first dismounting while I was still rolling, then hitting the front brake and using the rebound from the fork compression to start the motion back onto the centerstand. You should have seen it. It was really beautiful.

But as Joseph Heller once pointed out, something happened. What happened to Ralph is easy enough for me to figure out; it's written all over him. What happened to me is a little tougher to figure out from in here inside my own skin, but I know a symptom when I see one. Another friend of mine and I got to talking awhile back about the things we used to do in high school. He confessed that at his New England prep school, you had to walk in a certain fashion, sort of rolling along in the jock style of the time, and what was awful was that he actually had to learn to do that. For me, it was centerstands, among other things.

So I've come to understand Ralph and his abandonment of his motorcycle. For him, it had never gotten beyond a symbol, some transitory need in his life at the moment; once the moment had passed, bye-bye bike. He'll never be back. It leaves me wondering about me and my motorcycle. I'm aware that it's not what it once was between us, but somehow, now that I'm less conscious of the *style* of it, it's gotten better. Maybe I'm a little like my friend Ralph in this way. Now that I've finally gotten to where I want to be as a bike rider, now that I no longer care so much about what other riders think of me, I can enjoy my bike more. Because it's less important now, it's more important than ever.

—George C. Larson

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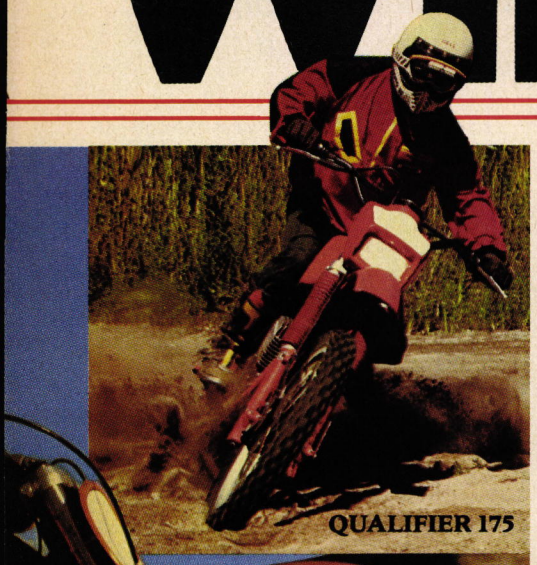

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MX-6 400

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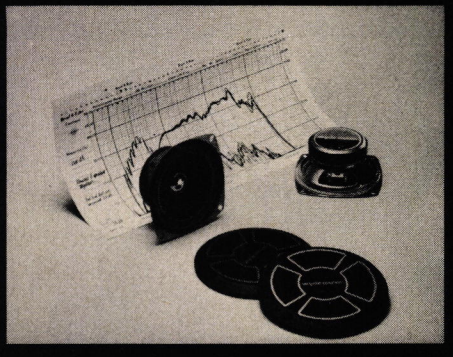

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Letters

Rationalism explained,
Remember the Big One,
The king is dead

AN OPEN DISPLAY

The cover of your January issue prompts me to ask the Question Of The Eighties: Can you digit?

Dave Rogers
Cambridge, Minnesota

MORE RATIONAL VIEWS

Some people are afraid to face the truth. I'm referring, of course, to the readers who were crying about the Rational Harley/Highway 61 story. Well, the day an American motorcycle company gets off of its ass and builds a bike as well as the Japs do, I'll buy one. That is, if the price is right. To me, a Harley just isn't worth it.

But don't take my opinion. Read the specifications and tests on the Jap bikes and compare. The truth hurts, doesn't it? The Japs are where it's at, that's a fact and that's that.

Ron Harms
North Ton., New York

Good God, but how this war of whose product is better goes on—the Rising Sun or the Stars and Stripes. I have but one comment to make:

In the four years that I have been riding a motorcycle, I have made an observation. Not so much about the bikes as about the riders. The people who ride Japanese motorcycles are generally well-groomed, neatly dressed and congenial in their attitude. People who ride Harley-Davidsons are generally dirty with oil and grease, sloppy in appearance and have the personality of an open septic tank. This should tell us something about the machines each group of individuals owns.

Chris Skaar
Gibsons, British Columbia, Canada

Say, do you think you could make that generalization a bit more sweeping?—ed.

THE BIG ONE

I didn't read the Highway 61 article, but it certainly brought out a lot of anti-Japanese feeling in our God-fearing countryside. I'm glad to be a Canadian—we don't make any dinosaurs to be patriotic about.

Just to set a few things straighter: I lived in England in the early Sixties when a small motorcycle maker was going against all comers and beating them at their own game. Not only did Honda transform the entire motorcycle business, it created a new cycling image and brought bikers out of the darkness. I have ridden many bikes but only owned Hondas since that time. I do not buy a bike for image, nor for traditionalism nor patriotism. I buy a bike to get somewhere. Reliably *every* time. That's why I buy Honda. There are lots of great bikes around, but facts are facts: No motorcycle manufacturer has done more for the sport than

Honda. So don't give me that traditionalism crap—some people still think that WWII was a great idea.

George Steadwick
Richmond, British Columbia, Canada

I've never written a letter to a magazine in my life and may never again, but I've just seen the Letters section of the February issue. I must say, you guys have the testis of a bull elephant and the hide of a rhino. You put yourselves on the line in trying to show the rest of us what is wrong with a product—a Harley—and end up taking abuse like Joan of Arc.

Robert A. Kirk
Riverside, California

SOMETHING ELSE AGAIN

I can't stand it anymore! You must tell me! Was Mark Sampson's letter in the February issue a hoax? It was perhaps the most incredible letter I've ever read. Sampson is either a genius or . . . or he is something else again.

Also, can anyone explain why one of the motorcycle magazine columnists seems to have an oral fixation on the words "you should have known?"

Lloyd Biggs
Gotebo, Oklahoma

Could you be a bit more vague?—ed.

BLOOD LETTER

My blood is needed by me and people who want to live. So I've started a personal campaign; my aim is selfish, not humane.

As a motorcyclist, hazards come my way every day I ride, and accidents can be bloody. To perk up my body's blood-producing organs I donate blood to local hospitals two to three times per year. Then if I'm injured I might not bleed to death on the streets. Your readers might want to develop their blood production—it could save some lives someday.

Jos. E. Hicswa
Passaic, New Jersey

A SIMPLE EXPLANATION

During the last several months I have read quite a few articles and comments in *Cycle Guide* and other cycle magazines concerning the administratrix of the NHTSA Joan Claybrook.

I think it's safe to say that she is no friend of motorcyclists, and unfortunately, she is in a position of great power and influence. Although I have read nothing to confirm it, I strongly suspect that the lady is a militant feminist.

As we all know, anything that even suggests "macho" greatly upsets feminists, although a great many of them glory in their own hard-nosed macho attitudes. Now, what could be more visually abhorrent to a militant feminist than a macho-looking dude, resplendent in the riding apparel of his choice, astride a gruff, snorting, fire-breathing superbike? And if said feminist were the head honcho at NHTSA . . .?

No, I am not a superbike rider. Bikes in the 175cc–350cc range are more to my liking and limitations. But to those desiring and capable of handling more spirited mounts, I salute your right to have them. And militant feminists be damned—especially at the polls.

Ed Cooper
Athens, Greece

You seem to have a problem in relating to women—ed.

MONARCHIST

In your February issue you claimed that the 1980 CBX is the crowned king of the superbikes. I have to disagree. The king (CBX) was born in 1979 but it also died that same year. The 1980 version is nothing like its predecessor. I have a Z1-R Kawasaki. I have raced two CBXs, and after they got dusted all they could do was hang their heads in shame. The king is dead; long live the king (Kaw).

P.S. Nothing handles like a Z1-R.

John Deleone
East Haven, Connecticut

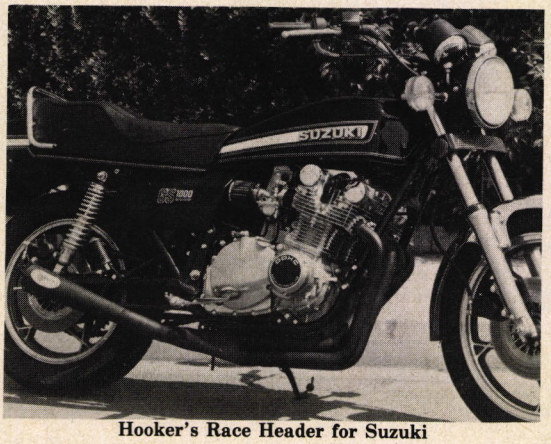
Truer words were never spoken—ed. •

HOOKER IS NOT FOR EVERYONE

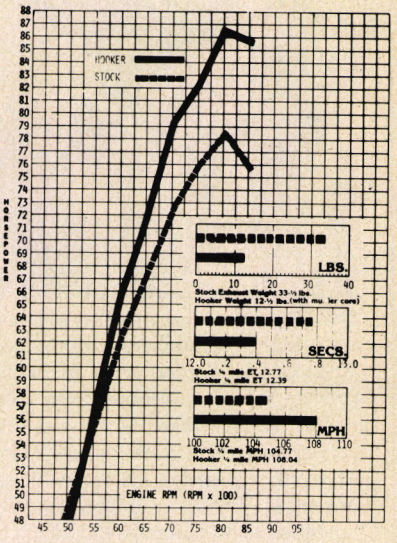
With gasoline at over a dollar a gallon, motorcycles are becoming more and more popular as a means of transportation from point A to point B. Those riders give no real thought to performance or appearance. Their main concern is cheap transportation.

Hooker headers are not for them.

However, for the man with an individual spirit, Hooker has exhaust systems to get excited about. With Hooker headers, you can stand above the crowd in appearance and performance.

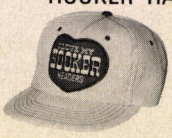


Hooker's Race Header for Suzuki



HOOKER HEADERS

HOOKER HAT, & MUG, ORDER DIRECT!



Name _____

Address _____

City _____ State _____ Zip _____

Master Charge # _____ BankAmericard # _____

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_____Hooker Baseball Hat (adjustable size) 7.50 each_____

_____Hooker Mug (16 oz.) 7.50 each_____

Total $_____

Please send check or money order to Hooker, P.O. Box 4090, 1032 West Brooks Street, Ontario, California 91761. Sorry, no C.O.D. Freight included. California residents add 6% sales tax. Offer valid for continental USA only. Void where prohibited.

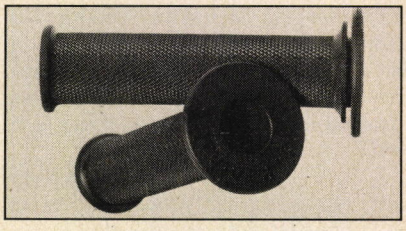
Motomart

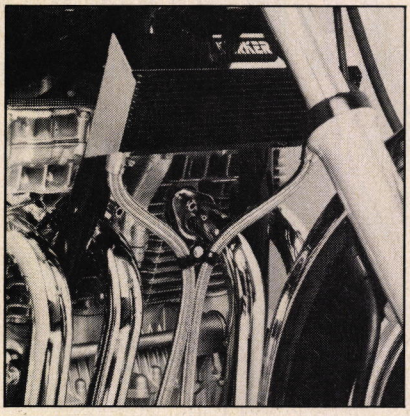
Lightening your wallet 12 ways

Make That Cycle Shine: Amer-Seal's Cycle Shine Ultimate Motorcycle Polish and Cleaner is guaranteed to protect chrome, aluminum, fiberglass, plexiglass and painted surfaces against road chemicals, tree sap, rust, corrosion and oxidation for up to one year. It retails for $3.95 at your dealer.

6-In-1 From Bel-Ray: The Bel-Ray Company is marketing a new, all-purpose lubricant for motorcycle and automotive use. 6-in-1 works as a penetrating and lubricating fluid to protect against corrosion and rust. It is claimed to loosen rust, eliminate squeaks and to clean as it lubricates. It also is billed as being safe for electrical contacts. This new slippery stuff is available at most motorcycle shops throughout the country. You'll find it in orange-and-blue aerosol cans.

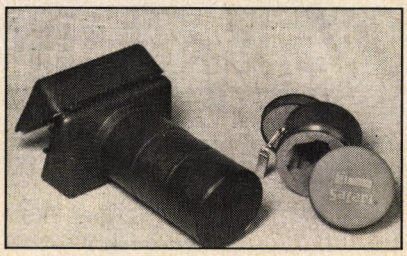
Grab These Grips: For trials fans, Renthal Professional Trials Grips are available from Knobby Shop International. Knobby Shop says that the grips are made from natural rubber for handy holding and to resist abrasion and sweat. They are a small-diameter design, and incorporate a diamond pattern. Further, each Renthal Professional Trials Grip features a built-in safety-wiring groove to let you secure the grip to your trialer's handlebar. These grips can be had, but only from Knobby Shop International, the sole U.S. distributor for Renthal grips. For further information write Knobby Shop International, P.O. Box 1592, Dept. CG, La Jolla, California 92038. Or, if the post isn't hasty enough, you can call Knobby Shop at (714) 452-1783.



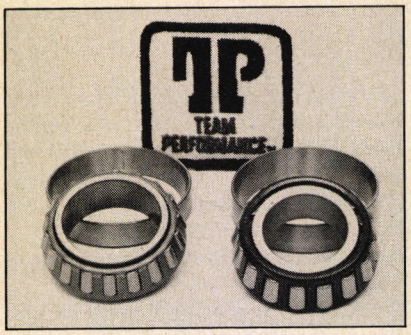


Cool It: Just in time for warm-weather riding is Kerker's oil-cooler kit for the Yamaha XS1100. The Kerker device is claimed to provide seven to 10 times more internal cooling surface than the fin-and-tube or serpentine coolers. Kerker's cooler kit uses 12 separate passages instead of the usual one or two. The kit is designed for full-flow operation so oil-flow rates should not be affected. Oil-temperature reductions of up to 125 degrees are claimed for the Kerker kit, depending on the model and riding conditions of the bike; capacity of the unit is 7500 BTU. Suggested list price is $89.95. See your Kerker dealer or contact Kerker directly at 7900 Deering Avenue, Dept. CG, Canoga Park, California 91304. Or make the phone ring by dialing (213) 999-3060.

Safari Camera Case: For biker/photographers, protecting a camera from things that go bump on a bike can be a problem. New on the market, though, is the Safari SLR modular camera case, designed to provide solid, lightweight protection for your camera and telephoto lens. The case can be used for a camera with almost any lens attached, for the camera body alone or for individual lenses. Separate balancing points are incorporated into the design of the case to allow you to wear the camera from your neck, shoulder or holster-style from a belt. It's designed to fit all major SLR cameras with lenses between 16mm and 300mm. The case is constructed of high-impact plastic with a foam padding; it is claimed to be water-resistant and to insulate camera equipment from dangerous temperature extremes. For ordering information contact Safari Camera Case, Inc., P.O. Box 19972, Dept. CG, Houston, Texas 77024. The phone number is (713) 465-2232.

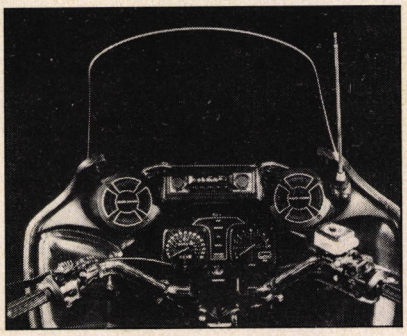


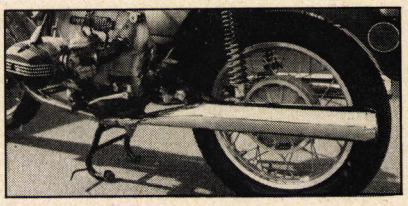
Like Floating On Air: Getting to the bottom of the comfort quest is the Allyn Air Seat. The seat is an inflatable cushion that straps to your motorcycle's stock seat. When not inflated, the air seat can be stored in a saddlebag or fairing. It fits all standard seats and can be divided into two solo cushions for double-bucket touring seats. All-day comfort is guaranteed by the manufacturer, who claims the Allyn Air Seat eliminates "fanny fatigue" by equalizing pressure points. The seat is two-tone, with a white side for warm-weather reflecting and a darker side for cooler days. The price bottoms-out at less than $30.00. For more information write to: Allyn Air Seat, Box 576, Dept. CG, Lenox, Massachusetts 01240.



Steering-Head Bearing Kit: The Team Performance steering-head bearing kit could be the answer to your tight-turn blues. The kit is complete with both upper and lower tapered, Timken-type roller bearings, races and necessary hardware (where applicable). This is a drop-in replacement for the original ball-type bearing. It is claimed to eliminate the need for future replacement due to wear; turning is said to satisfy riders of leisure. Suggested retail price is $29.95; the kits are available to fit most popular motorcycles. To get yours, see a Team Performance dealer.

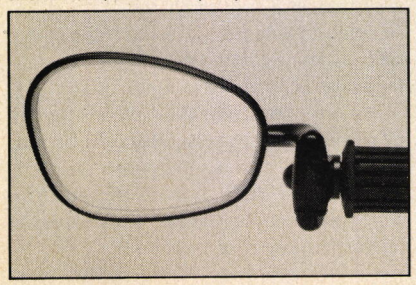
Sound Off: Cycle Sound Systems has expanded its line of motorcycle stereo systems to fit Vetter and 1980 Yamaha fairings. For your listening enjoyment model 1-1000 comes with larger speakers than some Brand-X models. The speakers have a new design and reflect through a new grill. In all, there are nine Cycle Sound systems to choose from, including models to fit the Harley-Davidson FLH and Pacifico Classic fairings. Motorcycling audiophiles can order a mobile stereo from Cycle Sound Systems, P.O. Box 41, Dept. CG, Bulverde, Texas 78163.





BMW Mufflers: Replacement mufflers for most BMW motorcycles are available from J&R Exhaust Systems at what J&R says is about half the cost of OEM replacements. The mufflers are built of 16-gauge steel to minimize rusting and bracket breakage, and include a mechanical silencer that J&R says will not get louder with age. J&R mufflers are claimed to increase power and weigh less than stock BMW mufflers; they require no jetting changes, and because the mufflers retain your bike's stock lines, saddlebags can be fitted. The noise level of these mufflers is claimed to be within two decibels of the stock BMW mufflers. For more information contact J&R Exhaust Systems, 550 West Mercury Lane, Dept. CG, Brea, California 92621. The phone number is (800) 854-6707.

Bar-End Mirrors: Albert, a German manufacturer of automotive and motorcycle mirrors, is marketing two new bar-end mirrors. Features include cast-aluminum-and-steel construction with a matte-black finish, pivoting arms, a positive-wedge mounting system and a fold-in design for narrow gateways. The convex lenses are replaceable if broken; flat and tinted lenses are available for optional replacement. Two mirror styles are offered: the short-arm Sport model for low bars, clubman or clip-on bars; the long-arm Touring model for higher-rise handlebars. According to the distributor, both models fit any handlebar with an inside diameter of at least 17.5mm or .690 inches. The Sport model sells for $17.95 and the Touring model costs $18.95. For ordering information contact Manxman/BCW, the only U.S. distributor of Albert mirrors. The address is 385 Eighth Street, Dept. CG, San Francisco, California 94103. You can call Manxman/BCW at (415) 863-8884.



Making It Work: DG Performance now carries a works kit for the 1979 Honda CR125R. With it, you can make your bike look like Honda's own RC125. The kit includes a plastic fuel tank, FIM side plates and a cable-saver number plate. All pieces are molded in plastic (claimed by the manufacturer to be unbreakable) and are color-matched to the Honda MXer. This kit sells for $71.50 but the pieces can be purchased separately: fuel tank, $54.50; FIM side plate, $19.50; front number plate, $5.50. The works kit is available now at your local DG Performance dealer, or you can contact DG directly at 1170 Van Horne Road, Dept. CG, Anaheim, California 92806. You can telephone DG Performance at (714) 630-5471.

The Simpson Look: One way to avoid giving yourself a real wet look is to get yourself Simpson's jet-black, "wet-look" nylon jacket or vest. The jacket features front patch pockets with openings at the top and side and a flap that covers the front zipper. The vest features twin side pockets and a snap-closed front. Both jacket and vest are quilted, sport Simpson's racing stripes at the shoulder and are available in sizes Extra-Small through Extra-Large. To slip into something comfortable, see your local dealer or contact Simpson Sports, 22630 S. Normandie Avenue, Dept. CG, Torrance, California 90502. Simpson's telephone number is (213) 320-7231.

Techspeak

Roller Derby

Playing ball with your chain

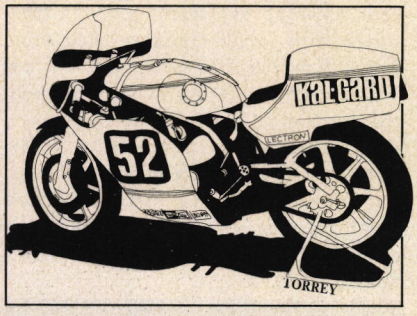
• Question: What has hundreds of individual bearings, is built to superfine tolerances, moves at very high speed and gets its lubrication from a random mixture of dirt, sand and water with an occasional squirt of oil just for laughs? Answer: the drive chain on your street bike. If you have a dirt bike, the same description applies, except you delete the reference to oil and add a reference to mud.

If you've never thought of your chain in those terms, you should. Because a chain really is a precision component that can, when regularly cleaned, oiled and adjusted, transmit power from your engine to the rear wheel with more than 98 percent efficiency and last for 20,000 miles or more. Most of the time, though, it just flops around loosely while eating enough dirt and water to kill any engine.

In fact, compared to an engine, the chain is pretty complex. It may be only a load of pins and bushes connected by rusty sideplates, but under all the junk lubricant is some fine engineering. At each joint in the chain there are actually seven different pieces of steel. Wipe the junk away and take a look. There are four sideplates, a roller, pin and bush, each in there to keep things moving.

The bushes are in the middle of the bearing sandwich with a roller spinning freely over the top and a solid pin passing through the center. Just like an engine bearing, the chain bearing has to be made to very fine tolerances. All three elements in a chain should be within 0.1 percent of optimum, which means that on an average chain there will be no more than 0.000375 inches of clearance at each joint.

Figures like that certainly bring home the complexity of chain. What they do not do is tell you what to ask for when a replacement is needed. For that the parts man is going to need three different dimensions: the pitch, width and overall length. Pitch is simply the distance between the pin centers, while width is the distance measured between the inner faces of the inner sideplates. In this country these two measurements are converted into a three-digit number, referring to the number of eighth-inches in each dimension. A typical chain would be labeled No. 520. It would have a pitch of 5/8 inches and a width of 2/8 or 1/4 inches. The third figure refers to any fraction of an eighth-inch in the width measurement. A 525 would be 5/8 inches of pitch and 2.5/8 inches of width, or simply, 5/16 inches wide.



The simplest measurement to find is the overall length. To find it you add up the number of sideplates along one side of the chain. With this figure you can go along and order the exact size and length of chain you need. The trouble is, it may not be exactly the same length. Sure, it will have the right number of side plates, but chances are that a tape measure will find a noticeable difference in overall length between your old chain and the new one.

This difference often is misleadingly called chain stretch. Stretch it is, but not in the same way that an elastic band stretches. That would take more force than most machines can produce. An average 1000cc motor will exert around 1000 pounds of tension on a chain in hard first-gear acceleration. By comparison, a good chain will have a tensile strength in excess of 6000 pounds.

Elastic stretching is therefore ruled out as an explanation for the difference in the length of your two chains. Plain old wear and tear is the culprit. Each one of the tiny precision bearings in a chain manages to eat a lot of dirt that acts like grinding paste. One worn bearing would have little effect on the length of your chain, but when the wear from each bearing is added up, the total free play is considerable.

This increase in length is the only accurate way of measuring the working condition of a chain. How dry or rusty a chain looks means little. It may indicate neglect, but not the amount of life left in the bearings. By comparing the worn chain with the original length, its life expectancy can be predicted accurately. Most manufacturers recommend a new chain when its length increases three percent. At this point the case-hardening on the bearing surfaces has worn thin and failure could be imminent.

Postponing the approach of the three-percent wear-barrier requires maintenance. Not just a squirt of old oil every month, but the same care and attention you lavish on an engine. That means lots of good lubricant in all the right places. On the chain, the right place is inside the bearing surfaces. Getting lubricant down between the sideplates and rollers is your aim and the simplest method is to use a spray lubricant. These employ a thin, quick-evaporating carrier liquid to transport the lubricant into fine cracks where regular oil would not penetrate.

The hot setup is simply to spray the lube through the plastic tube supplied and direct it to the junction of the rollers and sideplates. Do this on the *inside* run of the chain and centrifugal force will force the lube outward and into the bearing. Spray it on the outside run and it will shower over your jacket as the chain slings it off.

If the thought of all that work annoys you, there is an answer. Or rather *two* answers. An O-ring chain is much like a regular chain but it has been packed with grease at the factory. The grease is held in place by small O-rings and only a small amount of light lubricant is needed for maintenance. Be careful, though, because certain spray chain lubes (and ozone) will destroy the rubber.

Even less attention is needed for the self-lubricating chain. It's made from special porous steel that is impregnated with oil at the factory. The heat built up in use melts the oil, which then oozes out to give constant protection. With self-lubricating chains light oil should be used sparingly, as heavy chain lube can block up the porous surface and prevent it from working.

While O-ring and self-lubricating chains require less attention than the regular variety, every chain needs to be correctly tensioned and aligned. If a chain is too slack or misaligned, it causes severe wear even when the right lubricant is used. Misalignment can cause seizure of some of the bearings and a total failure is just around the next sprocket.

Snapped chains are rare, but when they do occur it is often around the master link. Due to the master link's press-fit, sideplate movement and cracking are the harbingers of failure. For this reason many large bikes are fitted with endless chains. With all the sideplates riveted in place, the chain potentially is stronger, but it does require that the swingarm be removed to fit it in place.

But problems like that all are part of using chain drive. Sure, shaft drives may need less attention, but when properly maintained a chain is more efficient by a significant margin. And isn't a little spray of oil worth the extra horsepower?

—David Dewhurst

GUIDE LINES

Cycle Guide's Monthly Chronicle of Scoops, Tips, Rumors and Hard Facts

BY LARRY WORKS

COMING SOON

• Ever since the brouhaha of the 1980 new-model introductions began to die down, the industry has been waiting for the other shoe to drop—in the form of spring introductions. Well, the shoe is on the ground now, at least for some manufacturers. The rumored **KZ1000** Classic made an appearance at the recent Anaheim Show, and it should be out to dealers soon. The big news about the **Classic** LTD has nothing to do with its **polished tank** panels or its triple **drilled discs.** What's going to attract interest to the new model is that it features EFI, Kawasakispeak for electronic **fuel injection.**

• Of course, the Classic wasn't the only new bike that **Kawasaki** debuted at the show. Also on hand were **LTD** versions of the new **750cc four,** the 550cc four and the **belt-drive** 440D twin. Standard models were shown as well.

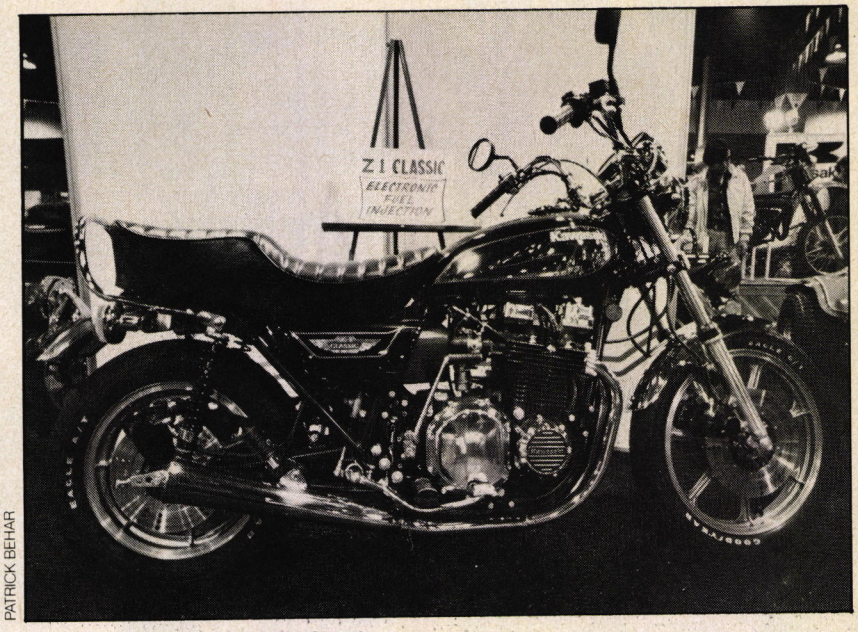
• But Kawasaki wasn't alone in making spring new-model announcements in the last month. **Suzuki** showed two versions of its new **400cc** street thumper, the **GN400T** and the **GN400XT.** The bikes are basically similar, with **leading-axle** forks, single front disc brakes, **16-inch** rear tires and kick-only starting, but the T-model delves a bit more deeply into factory-chopper styling.

• Those two new singles didn't make up the sum of Suzuki's new models, though. Not even as far as street bikes go. There's also a new **eight-valve 250** twin with Suzuki's **Twin Swirl** Combustion Chambers. The six-speed quarter-liter streeter also runs an automatic cam chain tensioner, **electronic ignition** and a gear-driven engine counterbalancer. This diminutive tarmac terror tips the scales at 353 pounds.

• Stepping back off of the pavement, **Suzuki** also introduced a new series of off-road bikes, the **RS** line. There are two RS bikes, in **175cc** and **250cc** displacements. The new series is basically a mixture of PE, RM and DS features, brought together to produce what Suzuki says are deadly **serious** playbikes.

• The Anaheim Show also saw another new model, this time from **Bell.** It's a **full-coverage** helmet with a ratcheting faceshield called the **Tour Star.** In something of a switch for Bell, the new design is **not Snell**-approved.

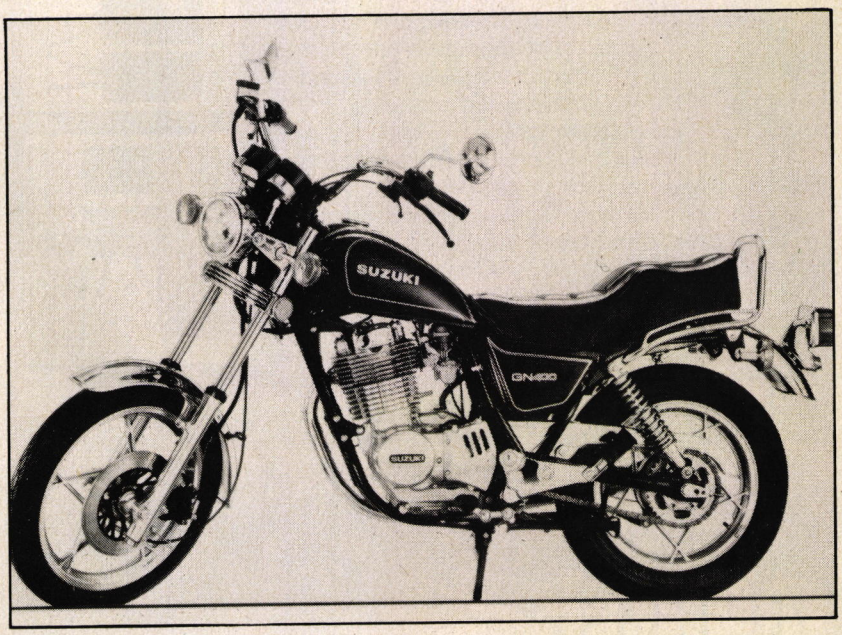
• In other helmet news, **Arai** has announced some new motocross gear, the **RMX.** The Arai offering is **Snell-75**-approved, is not intended



PATRICK BEHAR

Spring fashion: Kawasaki EFI Classic

Today's street-classic styling injected with the technology of tomorrow.



Suzuki single-mindedly pursues street cruisers with the GN400T

By applying the DR-drive to the pavement.

Continued

You asked for it and Martek has delivered it. The leader of motorcycle electronic ignitions has developed a **New** system that is the most reliable high performance ignition on the road today. The **440Z electronic ignition** and super high output **Blue Goose coils** will light up your bike and blast the ho-hums out of your motorcycling. This system doesn't compromise on the street or on the track. Simply put, the 440Z ignition and Blue Goose coils are the **BEST.**

440Z: This revolutionary electronic ignition leaps beyond any other system. Its dependability and high performance are based on the toughest solid state electronic technology available. Features include • easy installation • rugged and precise optical timing • special circuits to guarantee quick starting every time • 3 year factory guarantee. Available for all point-equipped, air-cooled Honda, Kawasaki and Suzuki fours. Suggested retail: $159.95.

Blue Goose coils: These dual lead coils for high performance bikes are so hot they'll give your riding a real jolt. Features • considerable more spark energy and voltage than either stock or cheaper replacement coils • easy installation in original coil-mounting position • removable plug wires (included with coils). Suggested retail: $98.95 2-coil set; $50.49 single coil. Martek has eliminated all compromises — now **you** take advantage of it — **for more power and a better running motorcycle!**

Martek electronic ignitions used by Terry Vance and other competition riders. Models available for most popular motorcycles. Send 50¢ for decals & 1980 catalog.

MARTEK Products, Inc.

3609 West MacArthur Blvd., Santa Ana, CA 92704
714/751-7901

GUIDE LINES *Continued*

for street use, has an adjustable **face guard** and a lining that's designed to be washed repeatedly.

• Remember **Rudge?** Well, the marque has been reactivated, this time in the form of a single-cylinder **500cc** four-valve **roadracer.** Plans from the factory also include a half-liter street bike in the near future. Don't look for Rudge **dealerships** to spring up overnight and begin squeezing out the Big Five, though. The new Rudges all will be hand-built and will command hefty pricetags.

• Want advice on pinching your tubes? Or better yet, on how to avoid pinching them? The **Rubber Manufacturers** Association is passing out an **eight-page book** on the mounting and demounting of the common domesticated tube-type tire. You can get the booklet free, just by writing the Association at 1901 Pennsylvania Avenue, N.W., **Washington,** D.C. 20006.

• Trends come and trends go, and right now the coming things are **waterpumpers.** Everyone seems to be getting into the act. That "everyone" now includes the Italian **Maer** factory, which has joined the water-cooled hunt with a 125cc MX 'pumper. The Maer entry in the **wet-bike** field runs a six-speed engine with a 14:1 compression ratio that churns out a claimed **31 horsepower** at 12,000 rpm.

• In other news relating to Italian factories, the **Cagiva** marque is set to be distributed in the **U.S.** Slater Bros., now the sole U.S. **distributor** for Laverda, has picked up the option for the Cagiva line.

• And one of the Cagivas that might see U.S. sale is the **DSTT** that was shown in last month's Milan Show coverage. Just to refresh your memory—and your longings—the Cagiva in question is a 250cc two-stroke streeter. Nothing much to stir your juices? Well, this particular **two-stroke** is a six-speed **waterpumper** with dual front discs and a **quarter fairing.**

• One of the new Laverdas that Slater will handle is the **1000cc Jota,** which differs from previous models via a **power** increase, new **shocks,** triple drilled discs and a frame-mounted half fairing.

• Another foreign machine that should see U.S. distribution this year is **Montesa's** new **125cc** enduro, the **H6.** Fore and aft wheel travel stretches the tape at more than seven inches, with remote-reservoir shocks at the rear. A 2.1-gallon fuel tank, 28mm carb, six speeds and a Motoplat ignition round out the **deep-woods** package.

• In addition to the Anaheim news, the show coverage this month comes by way of the **London Roadrace** Show, where scores of one-off and hand-built roadracers gave proof of the power of cottage industry. One of the more unusual entries, the **Macey 8,** attracted its share of the crowd through the intricacy of its 247cc two-stroke engine. There's nothing unusual about the mill, except that it's entirely home-built, has **eight** separate **cranks,** eight 17mm Mikuni **carburetors,** eight rotary **valves** and eight separate sets of points. An air-cooled head and water-cooled barrels

Continued

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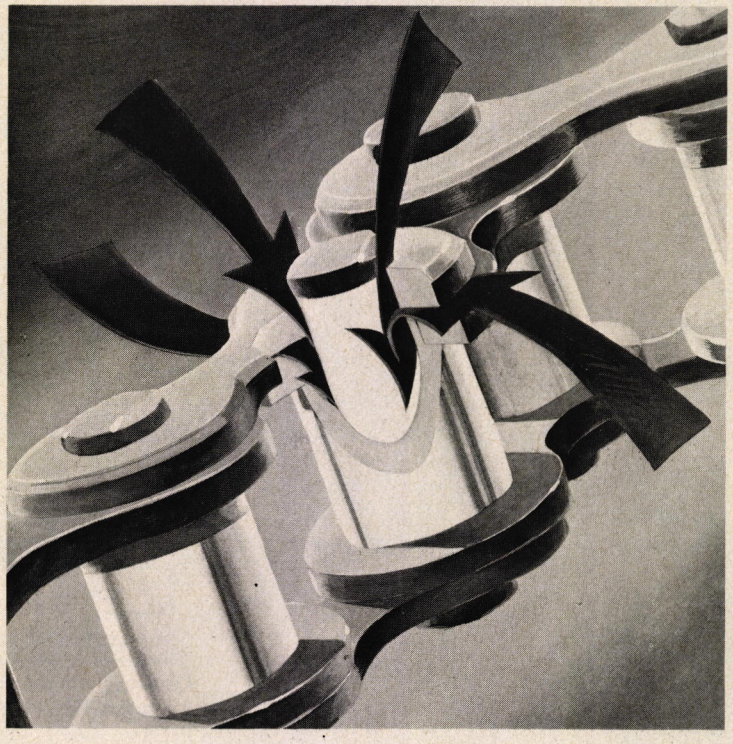

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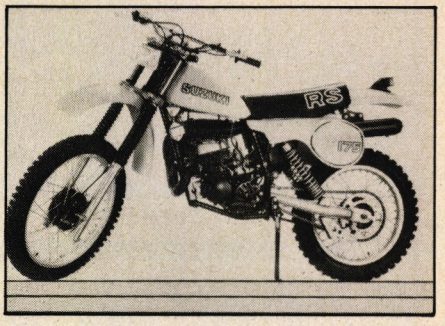


New-concept Suzuki RS175

With split personality—RM, DS, PE.

round out the attractions of the in-line octobike.

• Another of the entries at the show was a shade more conventional, but no less intriguing. And no less **in-line.** It's a **Cotton** racer, one of only 100 to be built. The bike is a water-cooled monoshocker built around a six-speed Rotax twin two-stroke engine and carrying Brembo discs, a Marzocchi fork—and a **$9000** pricetag.

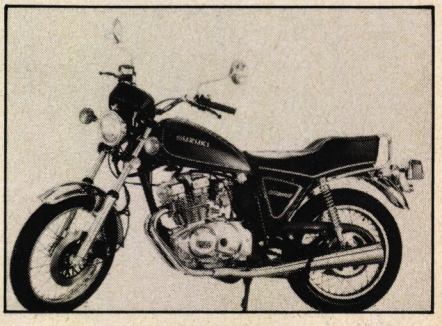
• In these oil-starved days, new **fuel** sources continue to capture headlines, but most of them don't **grow on trees.** This one does. A University of California chemist has found that the sap of the **copa-iba** tree of the Amazon makes an acceptable diesel fuel.

FEDERAL CASES

• If you've despaired of ever avoiding the seemingly **ubiquitous EPA,** here's a little something to give heart. It's called the Corporate Average Fuel Economy, and it's one EPA regulation that probably won't touch **motorcyclists.** The 1980 regulation requires that all new vehicles averaging less than **20 mpg** roll out of the showroom with something extra attached: a **fine** of between $200–$500.

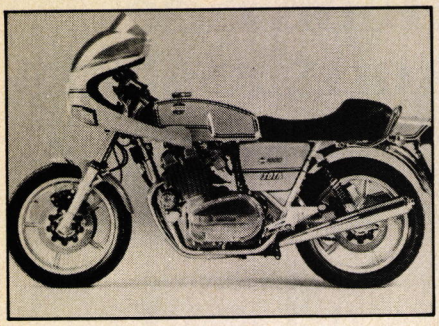
• The AMA is working on Congressman Robert S. **Walker** (Pennsylvania) to swallow his words—or at least to reword them. Waker co-authored a House **resolution** that calls for a federal **strike force** to deal with the ever-growing problem of "motorcycle **gangs**." The AMA's concern is that the resolution makes little or no attempt to define just what the strike force will be striking.

• In another AMA item, if you've been inundated with **"Rider Vote"** posters, so much the better. The posters are the latest phase in



Suzuki's Twin-Swirl GS250T

But do eight valves play in Peoria?



1980 facelifted Laverda Jota

New fairing, fender, distributor.

an AMA campaign to get **bikers to** the **polls.**

• In state news, California is one step closer to having a system of **trails** that will span the state from **Oregon to Mexico.** The plan is closer to happening now that **AB1620,** an appropriations bill for the **$250,000** needed to study the plan, has passed the California Committee on Water, Parks and Wildlife.

• On the opposite side of the country, a bitter struggle continues in **New Jersey** over a move to enact motorcycle **headlights-on** legislation.

• Also in **New Jersey**, a move is underway to promote state-wide **rider education.** A bill that calls for such a program of education, **S-3436**, is churning around the New Jersey State Senate.

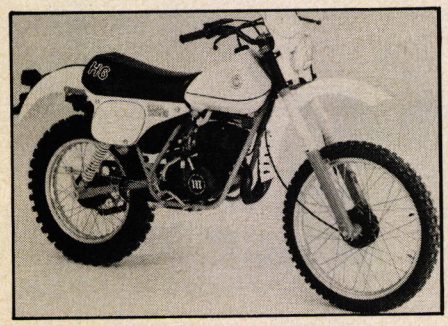
• Look for **Nebraska** to begin a push for mandatory **helmet** use. The state hasn't had an enforceable helmet **law** since 1975, when a permanent court injuction against the existing law went into effect.

• And jumping back to the West Coast, a **proposed** Santa Clara, California **ordinance** would **prohibit county** employes there from **riding** motorcycles during working hours.

HARD CASH

• With the 1980 racing season underway, most of the news of hard cash centers on contingency money. For example, Burmah-**Castrol** has announced that its contingency **ante** for 1980 National **dirttrack** and **roadrace** events adds up to a tidy **$15,000.**

• And **Scott USA** has gathered up a pot of $13,800 for winners who wear Scott gear at the Florida Winter AMA MX Series. That figure

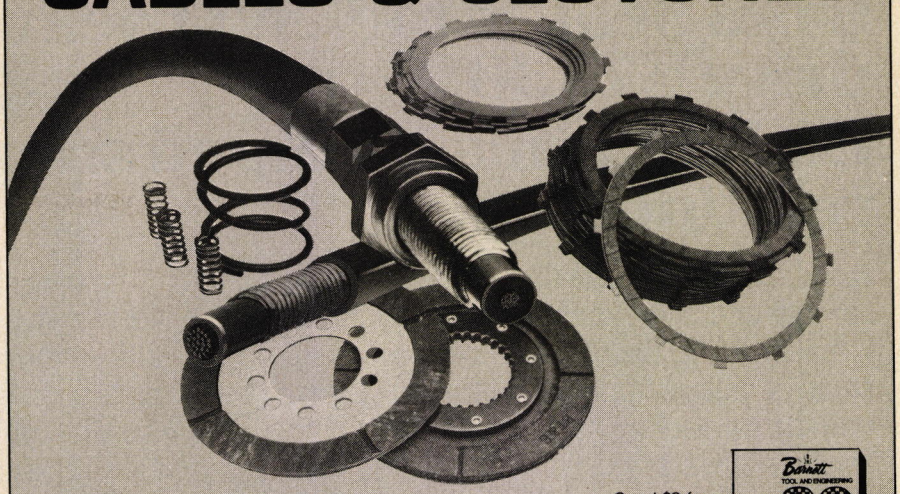


125cc Montesa H6 enduro

Short-legged stump-jumper.

Continued

CABLES & CLUTCHES



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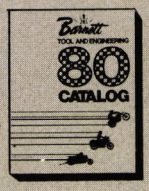

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Why did Eddie and Debbie Moon ride from Seattle to New Orleans on the shaft drive KZ1300?

Eddie claims it helped smooth out their relationship.

And Debbie agrees. When you find a bike as smooth and dependable as Kawasaki's KZ1300, it makes being the passenger a pleasure instead of an endurance test. And that means you end the trip feeling as good about each other as when you started.

When Eddie heard that Kawasaki had a shaft drive in some of their superbikes, he knew it was time to start investigating. He first looked at the new four-cylinder KZ1000 Shaft, and knew he was on to something. But when he noticed the new KZ1300 Touring, with its mighty six-cylinder 1286cc, DOHC engine, he knew he could cruise with luggage and Debbie—and still pass an eighteen wheeler going up-hill.

He found that the shaft drive delivered an incredibly smooth, quiet ride. He felt virtually no vibration, and the silent cam chain cut down

the engine noise. The cooling system itself enclosed the engine with a liquid jacket to further reduce noise. Even the suspension in the KZ1300 made life easy with air-adjustable leading axle front forks and five adjustable spring pre-load settings in the rear shocks.

The custom-designed Gran Touring package made getting there all the fun. The full fairing with lowers and recessed quartz-halogen headlight were made for chasing the horizon. Full instrumentation let him ride in confidence. Spacious saddle bags and travel trunk gave him lots of space. And Debbie loved the special high-back passenger seat.

After he checked out the goodies on the KZ1300, he told Debbie to get ready for a big gumbo dinner. He knew New Orleans was no longer just a dream.

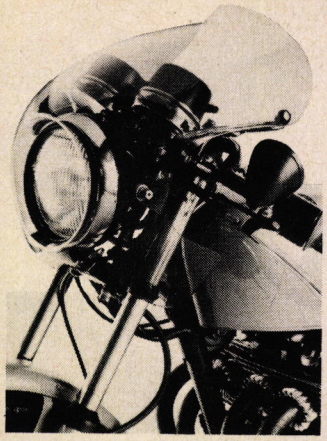
KZ1000 Shaft

The next time you're at your Kawasaki dealership, don't just stop with the KZ1300, try on the KZ1000 Shaft. These are bikes that'll bring tours to your eyes.

Kawasaki

Don't let the good times pass you by.

Model shown is the KZ1300 Tourinc with color and accent matched Gran Touring package, full fairing with lowers, co-ordinated saddlebags and shock-mounted travel trunk, special touring handlebars, two-piece passenger high-back seat and 7.1-gal. touring gas tank.



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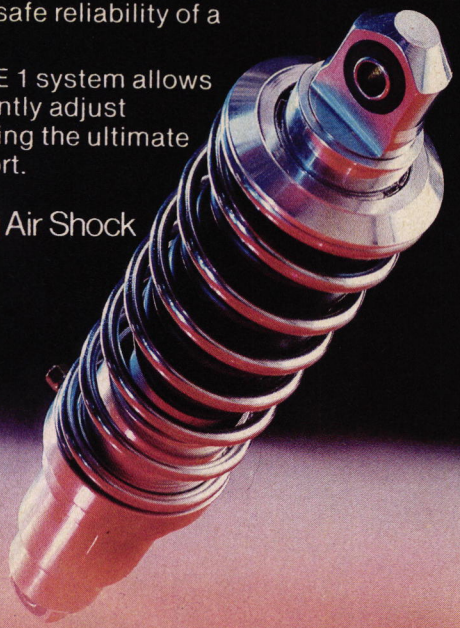

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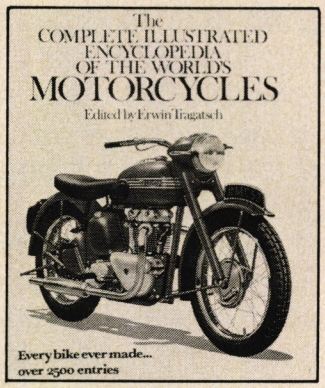
Book Review



THE COMPLETE ILLUSTRATED ENCYCLOPEDIA OF THE WORLD'S MOTORCYCLES
Edited by Erwin Tragatsch
320 pages, $22.95
Classic Motorbooks
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Osceola, Wisconsin 54020

• Maybe there's really no good reason to keep a 320-page hardbound volume on hand that contains references for 25,000 motorcycles built in 30 countries between 1894 and 1977. After all, I haven't heard many arguments lately about whether Opel experimented with a 496cc Motoclub equipped with six rockets, or if in truth Wilkinson produced a Touring Auto Cycle before it turned to razor blades.

Even so, Tragatsch's exhaustive compilation of illustrations, technical data and sporting histories represents the most fascinating study of the motorcycle's history that I ever have read. Not only can you trace the evolution of the motorcycle, you can come to terms with the ups and downs of the motorcycle business. Tragatsch delivers what few other historians ever have attempted: a synthesis of the facts. It's particularly evident in the six chapters he devotes to overviews of various periods of motorcycle history. Overview is in fact the right word for this work. This is not a grab-bag of details. Tragatsch tells you only what you should remember, emphasizing the important bikes and letting the irrelevant ones assume their proper proportions.

This book has its flaws, of course. Tragatsch skims over motocross marques and substitutes racing histories of the Japanese manufacturers for hard facts. The best work focuses on British bikes. But for the summaries of the motorcycle industry's business cycles, for the unusual photographs and for refusing to wallow in aimless detail, Tragatsch's "Encyclopedia" is one of the most important components of the knowledgeable enthusiast's bookshelf.

Besides, where else could you learn that CZ stands for Ceská Zbiojovka (Czech arms factory)? *—Michael Jordan*

Continued

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Superbike.

In 1979, we introduced a completely re-thought version of this phenomenal machine. And the critics didn't waste any time getting it out on the track. In fact, if you picked up a motorcycle magazine with a road test of the CB750F, there's only one way to describe the reviews.

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Take a close look at the 1980 CB750F and you'll see where all the excitement is coming from. Start with the engine. A 749 cc DOHC power-plant with a Pentroof™ combustion chamber and 16 valves that just breathe horsepower. Four 30 mm CV carburetors with an accelerator pump. And pointless inductive ignition.

Then look at the way it handles. Those tuned, four-into-two pipes tuck right up under the frame rails for lots of clearance. Because we designed everything to work together. The tough, double-cradle frame. The geometry. The low-stiction forks. The needle-bearing swingarm pivot. The aluminum-alloy ComStar™ wheels. The tubeless tires. The all-new externally-adjustable 30-setting shock absorbers. And thanks to those three big disc brakes, it stops as well as it goes.

We don't have to say much about the

TO THE TRACK. OOK.

styling here. Because if you own a CB750F, you'll love every last detail. And if you don't, you just can't appreciate all those tremendous little touches.

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Take a look at the 410 cc Box Stock Class. You'll see the 1979 AFM Number One plate—on a 1979 Hawk fitted with low handlebars and roadracing tires.

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But no matter how much you've heard about the CBX, you'll never know how much of a motorcycle it really is. Not until you take it in both hands and climb on board.

Start it up. The engine is smooth and quiet. More like a luxury sedan than the world's most intense motorcycle.

Slip away from the curb. Maybe you were expecting a thoroughbred sports machine like this to be high-strung and twitchy. But it's not. Even in stop-and-go traffic, the CBX is docile, cooperative, and predictable.

Then head for the backroads. And brace yourself for the experience of a lifetime. You knew it was going to be fast. You knew it was going to perform. But you didn't know it was going to be anything like this.

Obviously, this is a motorcycle you'll have to know more about.

And the best place to start is with the handling. Because we designed the chassis specifically to work with the tremendous torque the engine produces. By making the engine itself a stressed member of the diamond configuration frame. For maximum flex-resistance.

TEMENT.

Then we engineered the suspension to match. In front, you'll find low-stiction, adjustable air-forks. And the rear shocks can be adjusted in only a few seconds. To a total of 30 different combinations of compression damping, rebound damping, and spring preload.

The V-rated tires are tubeless, with a special tread pattern designed especially for the CBX. The black highlighted aluminum alloy ComStar™ wheels have triple discs. And the superb cornering clearance lets you get the most out of the suspension.

Now then. About the engine. Volumes have been written about it, but they can all be summed up in one word: More.

Because this is a 1047 cc DOHC Six. With a high-performance Pentroof™ head. Four valves to the cylinder. And a big-bore, short-stroke design that takes the redline a lot higher.

With six 28 mm constant-velocity carburetors and an accelerator pump, you get instant throttle response. The pointless inductive ignition delivers red-hot sparks right on cue. And the five-speed transmission shifts crisp and easy.

The CBX.

It says more about its rider than any other motorcycle in the world.

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But once you really get to know the CBX, nothing else will ever be quite enough.

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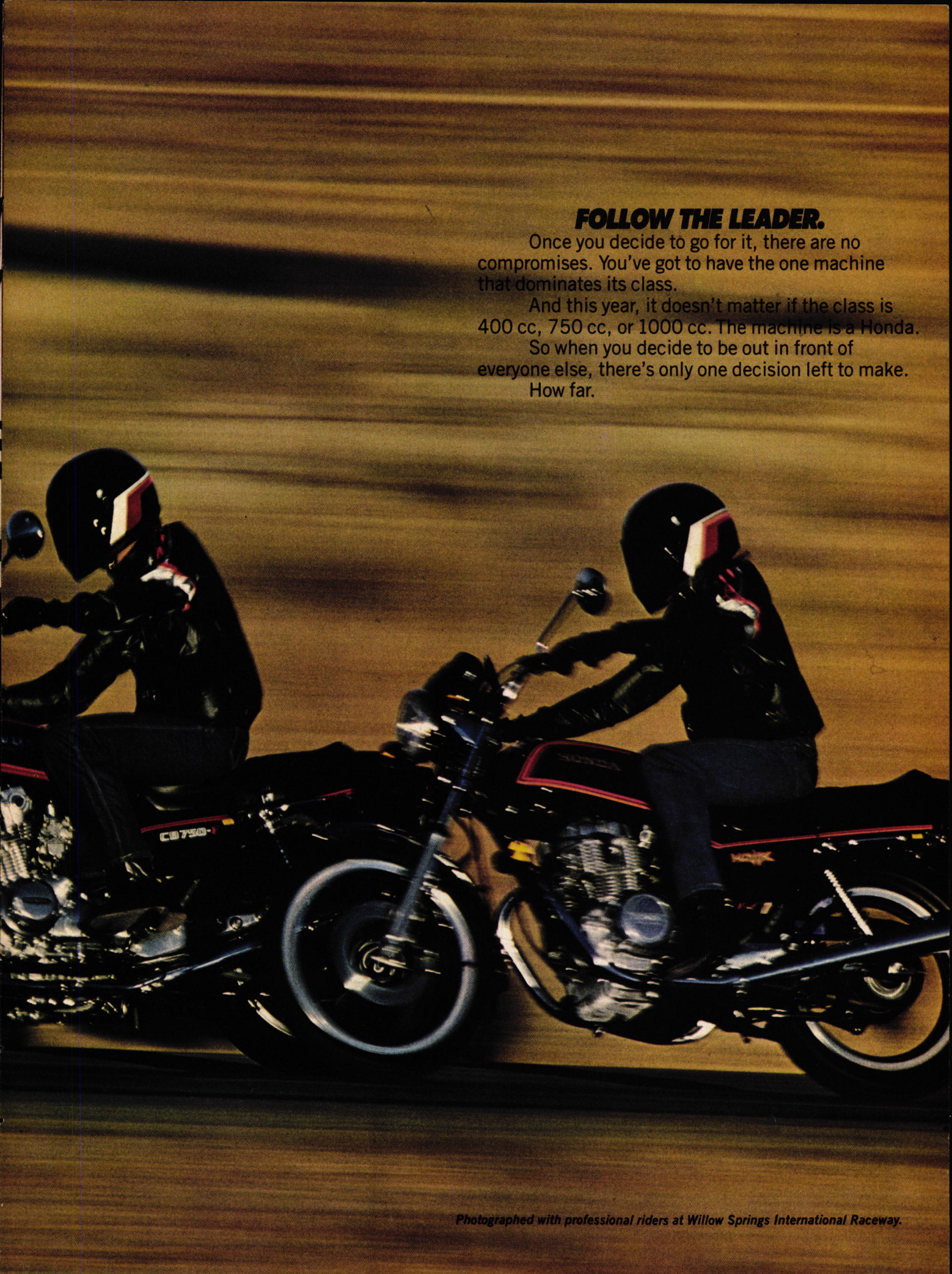
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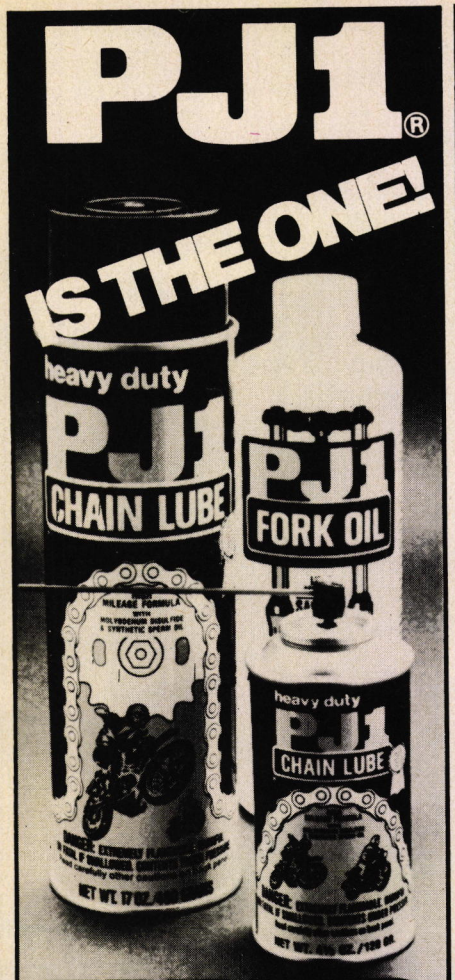

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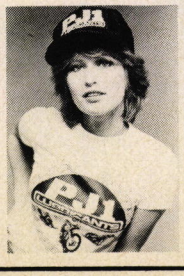

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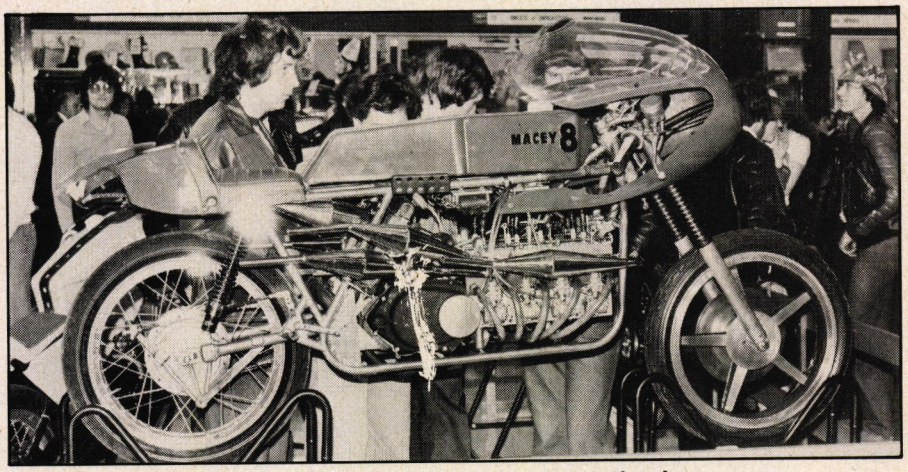
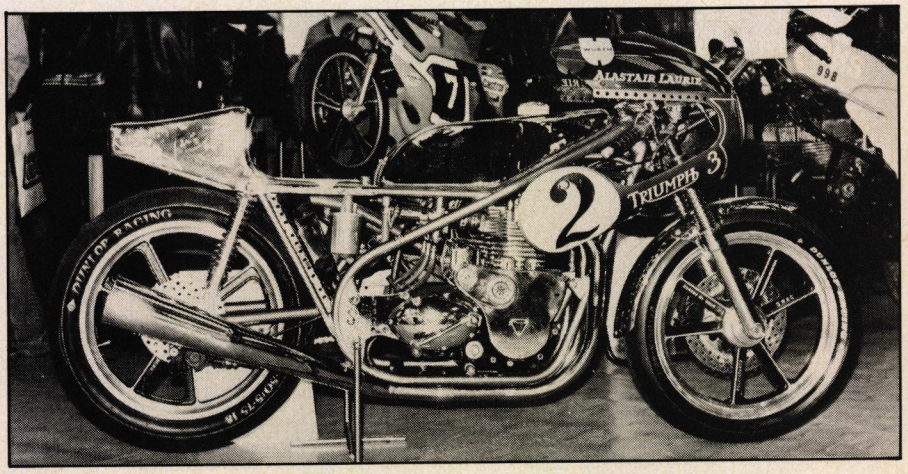
London Roadrace Show

Flash and chips for racy Brits.



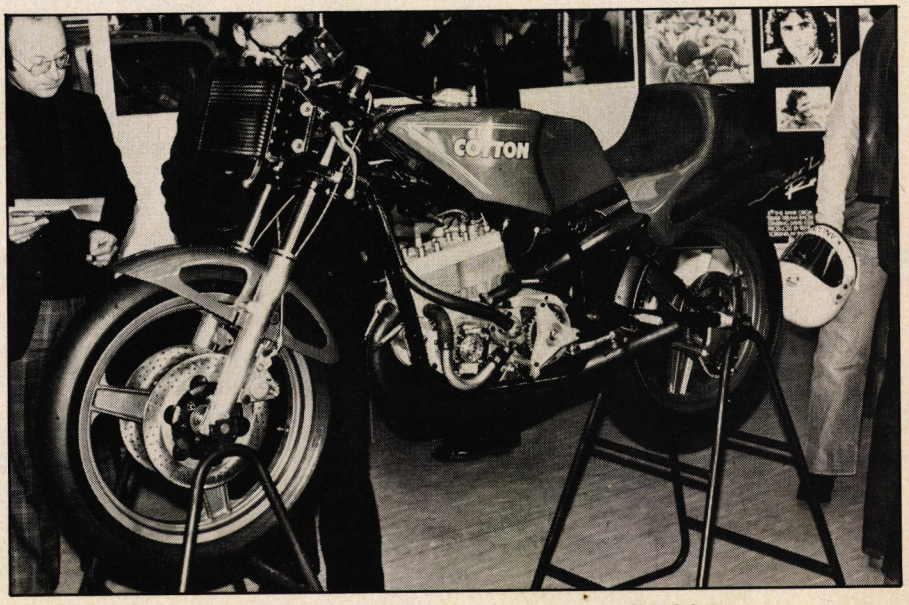
Hand-formed eight-of-everything Macey 8 leaves viewers emaciated

Proving, once and for all, that eight is enough.



Trident engine finds new home through the offices of cottage industry

Drilling home the old bit about lightness.

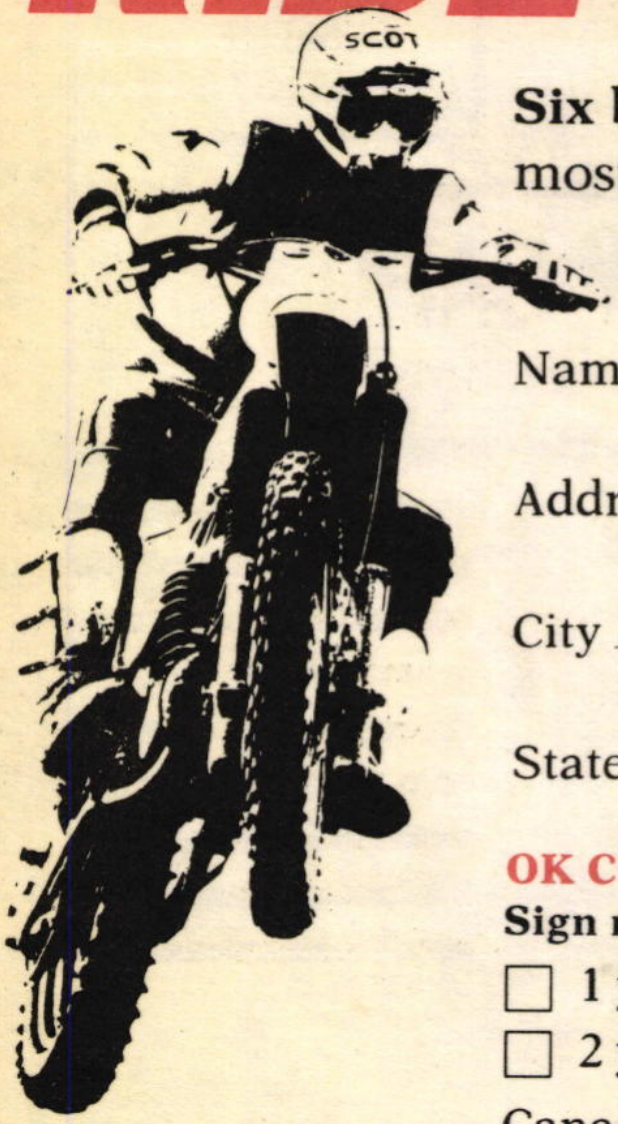


Water-cooled, six-speed, in-line twin carries current roadrace credentials

The 250cc-class alternative that TZ riders could Cotton to.

Continued

RIDE FOR LESS



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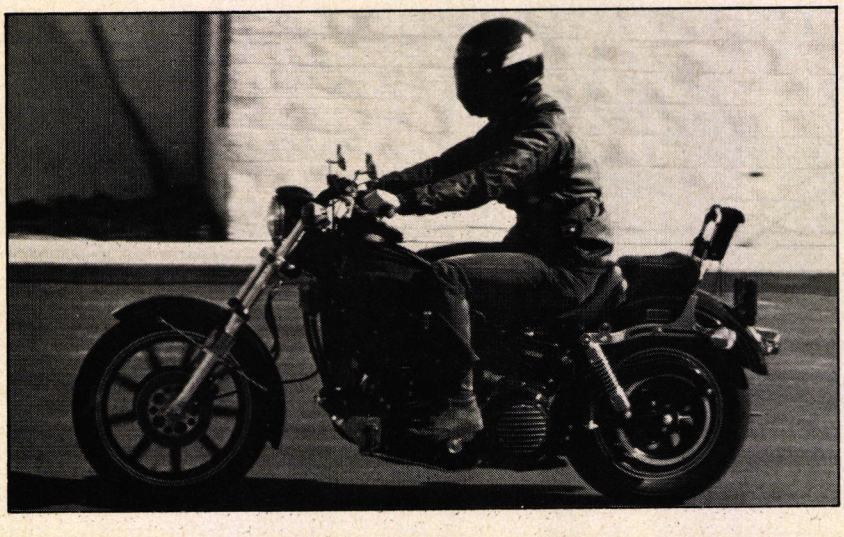
Harley-Davidson Sturgis

High-fashion belt for the Low Rider.



• If Harley-Davidson's new limited edition of the Low Rider, the Sturgis, begs one question, it's this: Why doesn't the bike need suspenders? The answer is simple: It already has a belt. Two, in fact.

While the reasoning behind equipping the Sturgis with primary- and secondary-drive belts instead of chains has to do with fewer adjustments and eliminating the need for chain lubrication, those aren't the most noticeable benefits. Substituting belts for chains should result in a quieter motorcycle with which to enter the Eighties—and expected tighter noise regulations.

I rode the Sturgis at its press introduction, and the big vee-twin is far quieter than its chain-driven counterpart. Most apparent is the absence of primary chain slap during deceleration and high-gear roll-ons.

The Sturgis might be based on the Low Rider, but that doesn't mean that the bike simply was thrown together overnight. Work on the Sturgis project began more than three years ago, when Harley-Davidson enlisted the technical assistance of the Gates Rubber Company, a manufacturer of industrial belt drives, to develop a motorcycle primary drive.

In the course of the development, Gates also came up with a secondary-drive belt, along with sprockets and adaptors. The Gilmer-type belts are made of polyurethane and Dupont Kevlar, and Harley spokesmen say the belts should last more than 20,000 miles before they need to be replaced.

Aside from a quieter-running motorcycle, another advantage of the belt-drive system is that you can forget about lubing your chain. A film on the inner surface of the belt "burns-in" after about 200–500 miles of riding and thereafter provides all the lubrication that's needed. As well as cutting down on maintenance, the no-lube drive belt also reduces the chance of getting oil in the Harley's dry clutch. With the drive system on the Sturgis, the only way to get oil in the clutch is through an engine oil leak.

In addition to its belt drive, the Sturgis differs from the standard Low Rider by running a five-percent-higher gear ratio. Specifically, the primary belt has 78 teeth (13.8mm pitch and 1⅛ inches wide) and the secondary belt has 126 teeth (14mm pitch and 1½ inches wide). Harley will stock a spare parts kit for the Sturgis that includes a lighter section of the belt to splice onto the secondary-drive belt in case of a break. The repair section is designed to last about 200 miles, according to Harley engineers—just long enough to get to a shop for full-scale repairs.

Only 1200 of the Sturgis bikes will be produced this year, so if you want a quick belt, you'd best avoid the local taverns and head straight to a Harley shop. The bikes are scheduled to be in dealerships by mid-April.

—Dain Gingerelli

Manufacturer: Harley-Davidson Motor Company
3700 West Juneau Avenue
Milwaukee, Wisconsin 52308

Category	street
Suggested retail price	$5687
Engine type	four-stroke tandem vee-twin
Valve arrangement	pushrod-operated overhead valves
Bore and stroke	88.8mm x 108.0mm
Displacement	1337.7cc
Carburetion	38mm Keihin butterfly-type with accelerator pump
Gearbox	4-speed
Final drive ratio	3.27:1
Front fork/wheel travel	6.9 in. (175.3mm)
Rear shocks/wheel travel	3.5 in. (88.9mm)
Seat height	27.0 in. (685.5mm)
Weight	586 lbs. (265.8kg)

Continued

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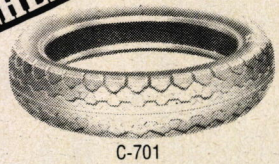

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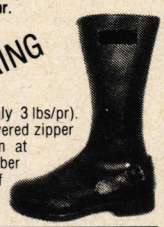

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GUIDE LINES *Continued*

represents Scott USA's **largest contingency** effort to date.

- Bell also has announced some contingency plans, and will post **$15,000** for the 1980 **Stadium Motocross** season. Unlike most other contingency programs, though, the **award** money from **Bell** will be paid out at the end of the season rather than being doled out along the way.
- Not to be left out, **Bates** Leathers has posted money for **straight-line** performance. The Bates purse adds up to $7500 in contingency sponsorships for the 1980 **NMRA** dragracing events.
- In still more contingency news, **Maico** USA is offering support in several off-road categories. At the top of the list, a **National MX title** on a Maico could be worth **25 grand.**
- And getting down to a slightly smaller trickle, **Maico's** contingency **support** for the **CMC/Can-Am Golden State** Series totals **$9500**. Any rider taking a first on a Maico will pocket $150. Second place makes for $75, while a third earns $50. And winning any of the three pro classes while aboard a Maico is worth $1000.
- Stepping back from the money being offered to the money being held back, there is the question of just how much it costs to **wear** a **Yamaha sweatshirt** these days. The answer is a surprising **$10,000**. At least, that's what it costs if you're Barry **Sheene** and you wear the Yamaha shirt to a Suzuki awards ceremony. **Suzuki** spokesmen said Sheene, who had made known his intention to leave Suzuki's racing effort for the greener pastures at Team Yamaha, had violated his contract by wearing the garment.
- And here's an item to consider when you next scramble your spine as you jounce over a **pothole**. According to a recent government survey, the **cost** for **repairing** the nation's road surfaces hovers somewhere in the exclusive neighborhood of **$124 billion.**

RUMORS

- Now that the Rumor Mill's speculation about a **Suzuki** 400cc **thumper** street bike has come true—in both **L-styled** and conventional models, the talk about Suzuki has shifted. The word now is that a new **single-shock RM** is just around the corner.
- Rounding out the tales on Suzuki, don't be surprised if the 1981 **GS550** dips into the **four-valve**-per-cylinder well.
- Like Suzuki, Honda also seems interested in the **street-single** market. Overseas sources say that a new **CB250** based on the XL250 is on the way. The rumors are founded on a Japan-only bike, which runs rectangular instruments, a 3½-gallon fuel tank, a single disc brake and **kick-only starting.**
- In other news from the House of H, it looks as if the **XL185** will get a **displacement boost** to match its XR counterpart, the 200.
- There's also a flurry of talk that a compromise resulting in **Honda** building a car in Great Britain under the **Triumph** marque could have **repercussions** in the motorcycle market.
- Other Triumph tidbits have the **new** T140E

Continued

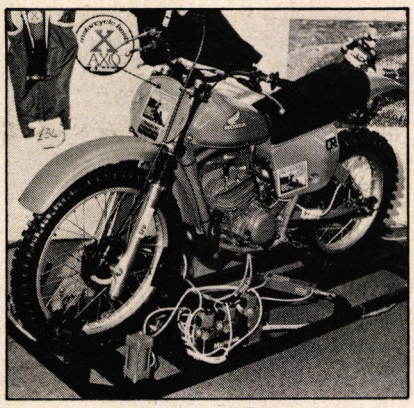
Playing Through

Rec-room motocross.

• Motocross without dirt would be something like swimming in a dry pool, nigh on to impossible. Well, not quite, since British factory motocrosser Bryan Wade has designed and built the world's first indoor motocross trainer—one that doesn't require mud, water or even knobbies to use. Simply pump the thing up to pressure and you can ride any motocross track in the world, in the privacy of your own home.

The Wade practice machine consists of a stock motorcycle mounted on a steel frame and articulated by pneumatic jacks. The jacks allow it to duplicate the pitch, roll and yaw found in a flight simulator. The difference is that unlike the flight simulator, the motocross trainer doesn't react to rider inputs. Rather, it inflicts sudden and sometimes violent movements through the motorcycle that come very close to reproducing the punishments of motocross.

Designed originally as an introduction to Wade's motocross training classes, where youngsters could get a taste of things to come, the device's popularity looks as if it will lead to commercially available versions in the near future. The first prototype model



DAVID DEWHURST

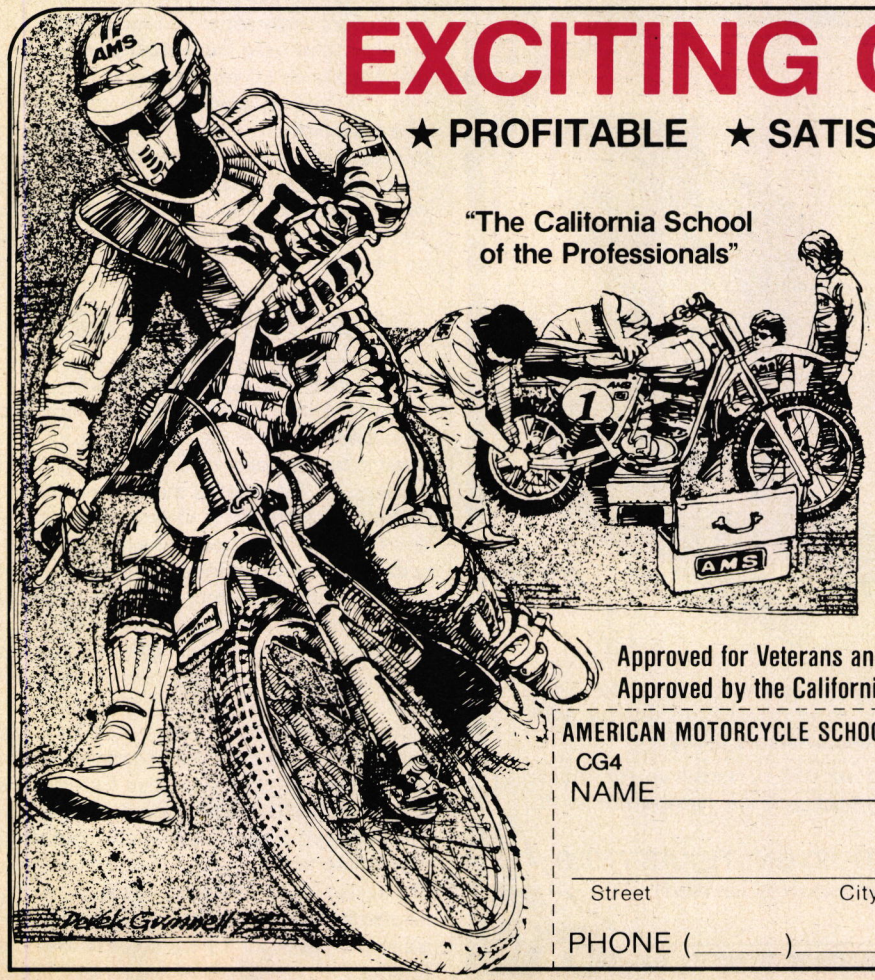
used a stock Honda CR125 to demonstrate the rigors of the track. In mounting the bike to the trainer's frame, the CR's shocks and fork springs were removed and replaced by pneumatic jacks. Two more jacks were employed to control roll movements, while a final jack affixed to the bike's rear end kicked the back wheel from side to side.

Each of the jacks is connected separately to a master panel, where individual or multiple movements can be controlled manually or in a continuous process through a computer. Through the computer, the trainer can duplicate the buck and slide of an on-track MXer, with only airborne movement simulation (read jumping) presently outside its repertoire. By increasing the air pressure in the system to 250 psi, each jack can slam the machine in excess of 10 feet per second—fast enough to highside even a good rider, and enough to simulate the roughest tracks.

Progress is not cheap, though, and the first prototype trainer cost about $2000 to build. Already Wade is designing a more-complex version that will add to the realism by its connection to a video screen. Fast laps of the world's toughest tracks then can be screened with the rider attempting to control the motorcycle. The computer will interpret the on-screen action and pitch the trainer accordingly, while correct rider inputs will minimize the jolts.

If plans work out, motocross hot shoes at last may be able to practice without getting their boots dirty. Not to mention enjoying one of the world's most complex video games.

—David Dewhurst



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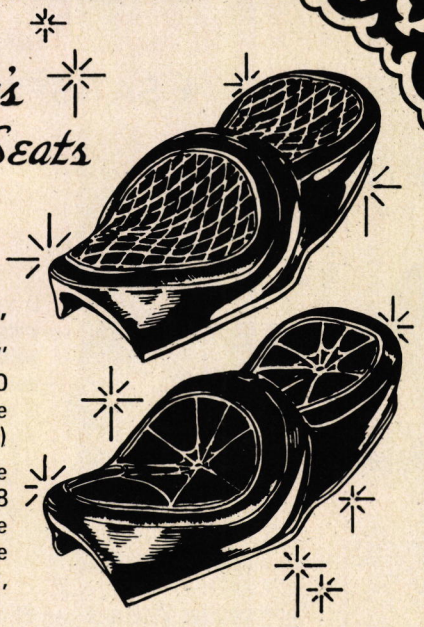

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Bonneville on its way over. Hinted-at specs include an electric **starter,** four-valve oil pump and a beefed-up **swingarm.**

• A persistent headline-grabber from Over There has been the much-mentioned Norton **Rotary.** Added to the latest slew of rumors are a couple of figures. The bike purportedly weighs in at **453 pounds,** has a top speed of **113 mph** and an out-the-door price that tops seven grand.

• Craig **Vetter's Mystery Ship** continues to be a topic of conversation, but something new has been added to the circulating myths: A **$10,000 pricetag** has been tacked on to what is known, suspected or downright **made up** about the **limited-edition** superbike.

• If you thought that Suzuki and Honda had this month's lock on producing rumors of new street singles, you'd be wrong. **CCM** has leaked word of a new two-valve single with decidedly **café** styling. The only figure linked with the **thumper** so far is its price, which reportedly sees the far side of **$3500.**

• And from Kawasaki comes a few more bits of news about its long-rumored roadracer, the **KR500.** What's being repeated these days concerns a **water-cooled,** square-four, rotary-valve two-stroke. Add to that list of trickery that the bike is also said to be a **Uni-Traker** with aluminum **monocoque** construction.

• Rounding out the list of suspected new machinery is Moto Morini's **turbocharged 500.** Foreign sources say that the bike will be rolled out into showrooms at any time. They also claim that the bike's chassis differs from the conventionally aspirated **Morini 500,** that it weighs in at **less than 400 pounds** and that it produces **60 horsepower.**

• In one last whispered item, government sources indicated recently that the EPA might just put a hold on **tightening** future noise and **emissions regulations** in favor of enforcing existing standards. The source went on to add that **yearly vehicle inspections** are on the way.

APART FROM THE CROWD

• The next time you're in **Florida** and you pass a **police** car at the side of the road, slow down to take a closer look at the occupants of the vehicle. The word is that several municipalities there are using **uniformed** mannequins in an effort to **control speeding** economically. The **dummies** are propped up at the wheels of junked door-slammers that have been painted to resemble patrol cars.

• If the Florida case doesn't give you pause to speculate, consider the example of one **Fred Hill,** a British motorcyclist. Hill offered an interesting argument at his recent trial for riding *sans* helmet. The court was hearing evidence on his 12th offense. Hill testified that when he applied for his license he swore that he was in possession of all his **faculties,** but that wearing a helmet impaired one of them—his hearing. The justices listened dutifully to the case, considered all sides of it, then trundled the **70-year-old** Hill off for a week behind **bars.** ●

ROAD TEST:

Suzuki GS1100ET

It defies gravity with a 105-hp thruster and space-age suspension. Escape velocity is only 11.43 seconds away. If you're not a believer yet, you soon will be.

ROBIN RIGGS

BY MICHAEL JORDAN

Listen, you worship at the altar of high speed just like the rest of us, right? Almost every street rider does. But have you noticed that a list of history's most famous two-wheeled performance deities amounts to a rogue's gallery of handling misfits? The Henderson Four, the Vincent Black Shadow, the Munch Mammüt, the Kawasaki H2, the Kawasaki Z-1, 1979 Honda CBX and others have reconnoitered the outer limits of performance with tremendously powerful engines that propelled them to warp speeds. Yet none of these bikes had a reputation for good handling. They were flawed in some fundamental way that made them almost uncontrollable at the speeds their engines could reach. They were not superbikes or hyperbikes, really; they were fearbikes.

The Suzuki GS1100ET earns its spot at the altar of high speed, all right, with 11.43-second quarter-mile capability and a 140-mph top-speed rating. Yet a GS11 rider never will confuse the thrill of speed with the thrill of fear. Because the speed demon within this Suzuki's 1075cc four-cylinder engine has been caged in a chassis as cunning and quick as the motor itself. It's the first ultra-fast motorcycle to be dead-nuts serious about nailing down the title of The Best in every important category of performance: speed, acceleration, handling, comfort and fuel economy.

I'll admit that this dedication to a balanced performance profile earns my admiration, of course, but it's the engine's 105-hp rating at the crankshaft that makes my blood boil. A displacement increase of 78cc and a higher compression ratio account for some of the 18-horsepower advantage the new engine has over its close relative, the GS1000 mill. Most of the power boost, though, comes from a new 16-valve cylinder head with Twin Swirl Combustion Chambers (see page 46 for an explanation of TSCC) complemented by constant-velocity carburetors with 6mm larger venturis than last year's slide/needle carbs. The result is better breathing throughout the rpm range, producing a wallop of horsepower strong enough to suck the tank badges off of a 1980 CBX and make your stomach do backflips.

Suzuki's decision to revise the GS1000 came in mid-1978 after the Yamaha XS Eleven broke the 1000cc and 12-second quarter-mile barriers and thus sanctioned hyper-fast bikes in the minds of Japanese motorcycle engineers. Since that time, the GS1000 engine has been revised comprehensively to become what the factory refers to as the GSX1100. To cope with the stress of this engine's 105-horsepower output, the dimensions of the roller-bearing crankshaft's crankpins and rod bearings have been increased, the connecting rods have been strengthened and the clutch carries one more plate than that of the GS1000. Also, the addition of more nickel to the chromoly material of the transmission gears and shafts makes them more durable while decreasing shifting effort in the bargain.

Only one anomaly exists in the high-performance specifications of the X-type GS engine: the valve train. Dual overhead cams actuate twin-fingered cam followers, each of which operates two of the engine's 16 valves. The followers pivot on their outside ends and depress the valves on their inside ends, with the cam lobes acting on the middle of the top of the followers. Valve clearances are determined by simple screw-type adjusters atop each valve stem, just as with most single-overhead-cam engines. Most modern double-cam engines, on the other hand, have their cam lobes pushing directly on shim-type bucket tappets atop the valves. And while this kind of tappet has earned a reputation for reliability and low maintenance, the procedure for setting the valve clearances can be time-consuming and costly.

Engine designer Sadao Shirasagi explains the use of cam followers in this engine with the comment that TSCC works best with a narrow included-valve angle. Forked cam followers permit this without making the engine excessively tall compared to similar arrangements with bucket tappets. At the same time, valve adjustment has been simplified so the owner can do it himself.

Still, the GS1100's valve gear will have a profound impact on the frequency of maintenance. An independent mechanic we respect—Dennis Smith of Cycle Tune in Torrance, California—strongly recommends that the engine's 3500-mile valve-clearance inspection intervals be observed faithfully. It's difficult at this point to compare the reliability of this new system to the shim-type because EPA regulations re-

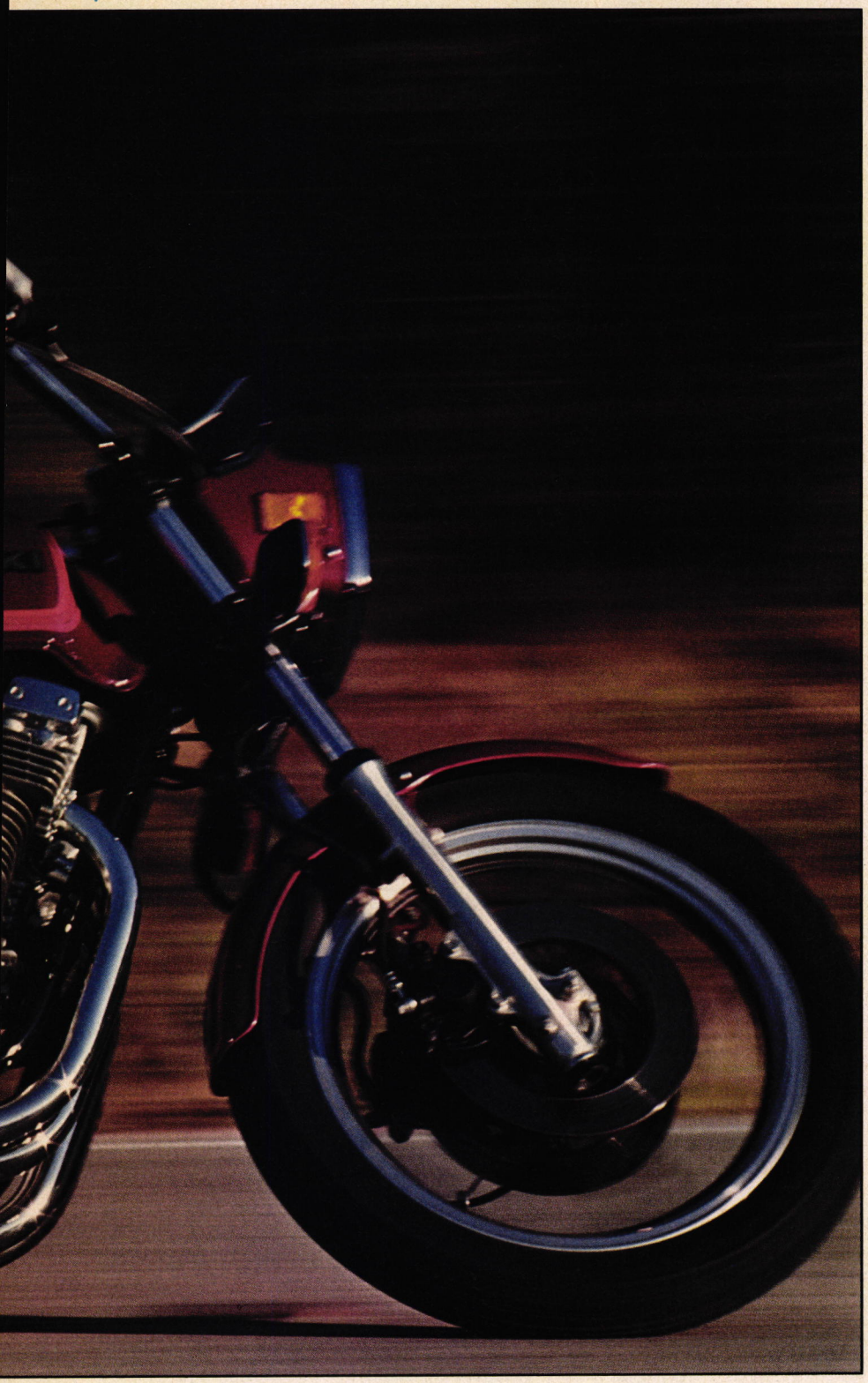
Continued

PHOTOGRAPHY: JIM COOK

quire that all valve-inspection intervals for 1000cc motorcycles be the same. But expeience has shown that screw-type adjusters need more frequent attention.

Smith does report that the GS11's valves can be adjusted in less than half the time of those using shims. The valves are more accessible and no special tools are required. Considering the incompetency of some mechanics and the frequency with which adjustment shims are back-ordered, Smith says, the Suzuki's frustration-free valve train should be an asset to private owners. In any case, if you take your bike to the shop for a tune-up, the money you save due to the GS11's maintenance-free transitorized ignition will pay for the valve adjustments.

There might be a few questions about the Suzuki's valve mechanism, but there won't be any about the engine's performance. It simply takes your breath away. You can generate effortless wheelies in first and second gear. You can ride around all day in fifth gear at 2000 rpm if you wish. The responsiveness of the engine ranks at the top of the charts. And when the Suzuki reaches its torque peak of 6000 rpm, it catapults forward like a starship that's been kicked into hyperdrive.



Acceleration and speed of this magnitude can disorient you at first. Gradually, though, you learn to work with the engine's predictable powerband and instantaneous response. The GS11 motor doesn't reach critical mass like that of a CBX; instead it climbs toward redline with the same authoritative rush as an XS Eleven. Yet like a CBX, the GS11 cruises at 6000 rpm with effortless efficiency. And the 1100's fuel mileage, surprisingly enough, duplicates that of the stingy plain-vanilla GS1000.

Only throttle response undercuts the Suzuki's assault on the High Speed Hall of Fame—there's too much of it. The constant-velocity Mikuni carburetors (each of which uses a rubber diaphragm in its vacuum-sensitive chamber rather than an aluminum piston as in Honda's Keihin CV carbs) respond very abruptly off of idle, accentuating the GS11's considerable driveline lash. And the normal, infinitesimal movements of your right hand as you jounce on the seat while cruising at small throttle openings can cause the engine alternately to accelerate and decelerate abruptly. These characteristics also make it difficult to dial-in the right amount of power when trying to pull away from a traffic light or maneuver in a tight parking lot. Still, this is Suzuki's first experience with CV carbs on a really powerful engine, and subsequent models should show much improvement in this area.

If the GS1100 were just one more speed-seeking hyperbike, its story would end right here. But Suzuki applies the notion of performance to every aspect of this motorcycle—not just to the engine.

For example, comfort plays an important role in the GS11's identity. The seat has dual-density foam, just like a GS850's touring-style seat. There's a pocket of soft foam beneath you surrounded by firmer, more supportive foam. Also, the GS11's shock absorbers have soft, GS850-specification four-position adjustable rebound damping. The first damping position is a step lower than that found on the GS1000's shocks, while the second position is 24 percent firmer than the first stage. The third setting is 48 percent firmer than the first and the fourth 67 percent firmer.

At the other end of the comfort-conscious GS11, the air-spring fork now has two anti-stiction bushings—one at the top of the slider and the other at the bottom of the fork tube. And the sturdy, RM-Suzuki motocross-style extruded aluminum swingarm reduces unsprung weight nearly four pounds compared to a GS1000 swingarm, netting an even more comfortable ride.

Each of these features helps the GS11 swallow long distances with a comfort-quotient unmatched by any other hyperbike save for a GS1000 or XS Eleven. The engine hums along at a modest 3800 rpm at 60 mph, keeping vibration at an acceptable level. So while the kilowatt potential of the motor might make the blood pound in your ears, this bike also can take you 500 miles in a day without pain.

You might expect the GS11's 544 pounds to prove a handful at speed, but Suzuki's penchant for strong frames and perfectly balanced suspension keeps the X-type from throwing its weight around. The GS1000-based frame has been upgraded to ultrabike capability, and the rear suspension remains the standard by which adjustable units from all other manufacturers are judged.

Also pivotal to the GS11's completely

Continued

TSCC: Doing More With Less

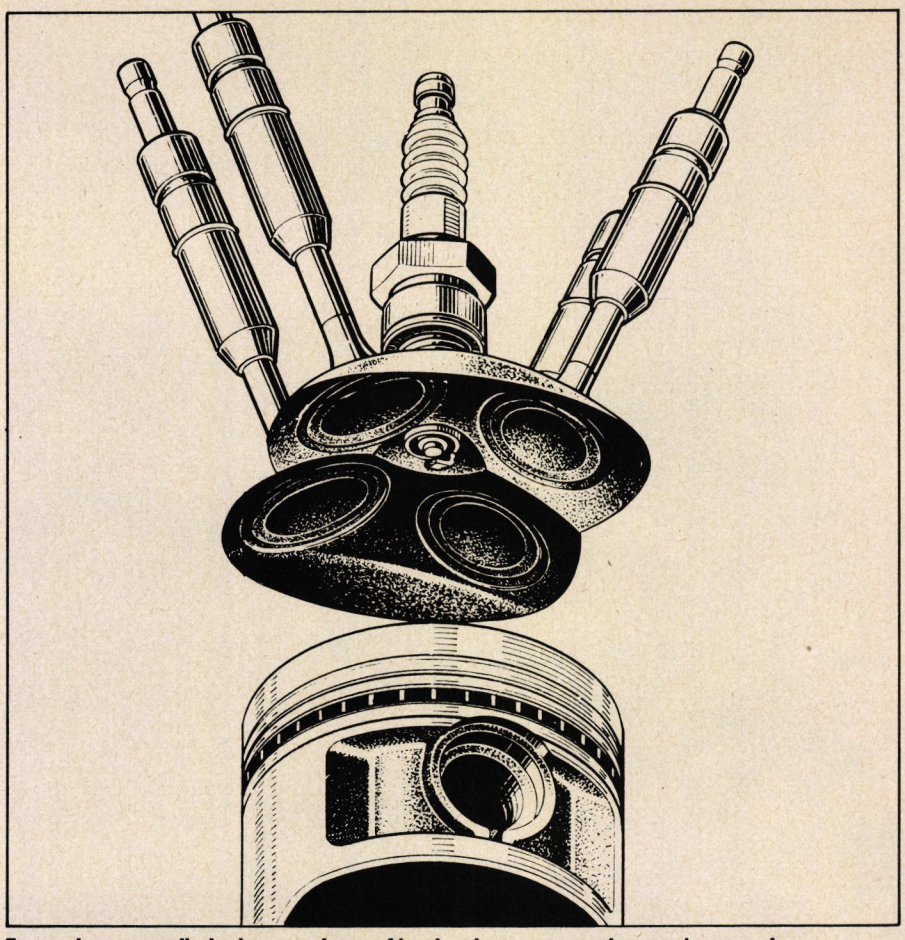
• When Suzuki engineer Sadao Shirasagi assumed the task of upgrading the engine performance of the GS750 in mid-1977 and later the GS1000 in mid-1978, he knew that simply moving more fuel mixture in and out of the cylinders could deliver the power boost required. His experience as an emissions engineer convinced him, however, that a cylinder head with just two valves per cylinder was a dead end. A four-valves-per-cylinder head was the obvious choice.

But Shirasagi additionally was instructed to improve the engine's fuel consumption and its pollution characteristics. And he says, "Theoretically, I think, a conventional four-valve-per-cylinder engine would not satisfy these requirements. Also, we had to develop good performance from low speed to high speed." Shirasagi therefore decided that efficiency should be his goal—not just peak output.

A book of patents on cylinder-head configurations and his ever-present pocket calculator inspired the patented design Shirasagi ultimately developed and dubbed the Twin Swirl Combustion Chamber. It attempts to reinforce the cylinder-charging capacity available from a four-valve layout with extremely efficient combustion. Through TSCC, Shirasagi attempted to do more with less, squeezing as much energy as possible from every drop of fuel.

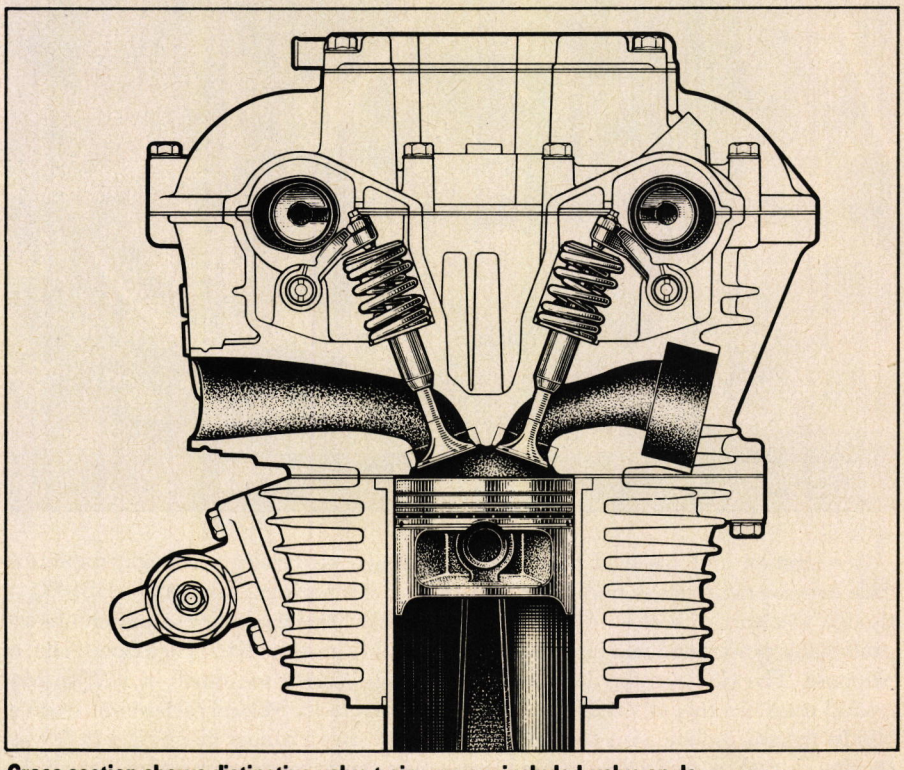
Improved fuel aeration and distribution in the combustion chamber are the secrets of TSCC. A longitudinal ridge in the combustion-chamber roof divides the chamber in two, funneling the intake charge into what amounts to two small domed chambers in a controlled circular swirl, rather than just sheer turbulence in one big chamber. As the piston rises on its compression stroke, a squish band in the chamber helps accelerate the swirling. The even distribution of fuel that results permits a high compression ratio without fear of pre-ignition, despite lean mixtures and unleaded gasoline. Meanwhile, the centrally located sparkplug assures an even burning of the intake charge. In sum, these features promote more complete combustion.

The TSCC design also has features that Shirasagi says improve the efficiency of intake charging. The included angle between the GS1100's valves, for instance, is 40 degrees, compared to 60 degrees for a Honda CBX. This means that the valves are located closer to a point directly above the combustion chamber, permitting a smoother shape for the intake port simply because the valve-guide bosses need not intrude into the port, as they must when the valves are at greater angles. According to



Four valves per cylinder boost volume of intake charge even at low engine speeds

Squeaky-clean emissions with central sparkplug, small valves, flat-top piston.



Cross section shows distinctive valve train, narrow included-valve angle

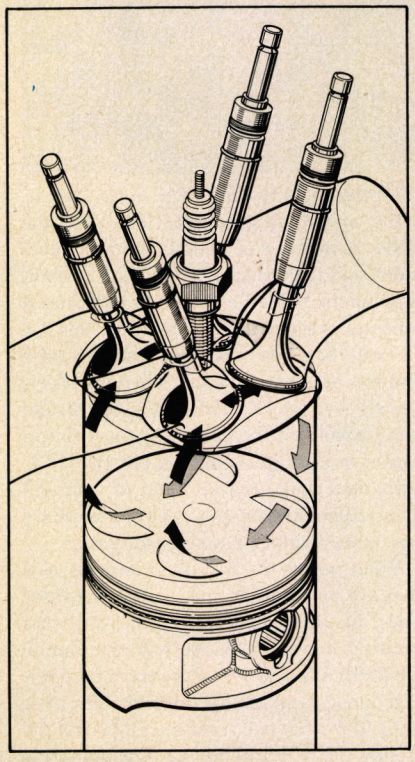
Locating camshafts to one side of valves reduces engine height slightly.

Shirasagi and Suzuki Engineering Director Uchiyama, this feature promotes substantial intake charges even at low rpm when combined with the swirling inside the combustion chamber, accounting for the GS11's good low-speed response. Naturally, the flow at high speeds also is improved.

Suzuki believes Shirasagi's TSCC does everything that has been asked of it. Good charging efficiency comes from the use of four valves per cylinder and a cleanly shaped intake port. High combustion efficiency comes from the TSCC shape, the squish band, the flat-topped piston and the centrally located sparkplug. A lightweight valve train makes high revs practical. And together, good charging and combustion efficiency add up to good throttle response at low rpm and high peak output. Furthermore, fuel consumption has been reduced by improved fuel aeration, high compression and high combustion velocity. Emissions performance is aided by the combination of small valves, reasonable valve lift and a reduced surface-area-to-volume ratio that gives less combustion-chamber surface for exhaust gases to cling to.

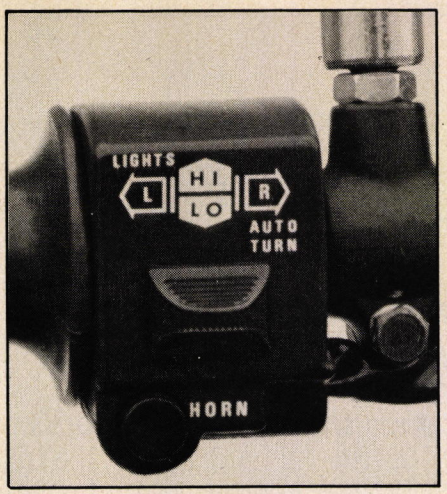
Suzuki's TSCC represents one of the most important developments of 1980. Other high-swirl heads have been designed and other centrally located sparkplugs have been featured, but TSCC demonstrates that high horsepower and good throttle response at low speeds are not incompatible with good fuel consumption and acceptable air-emissions characteristics.

—Michael Jordan



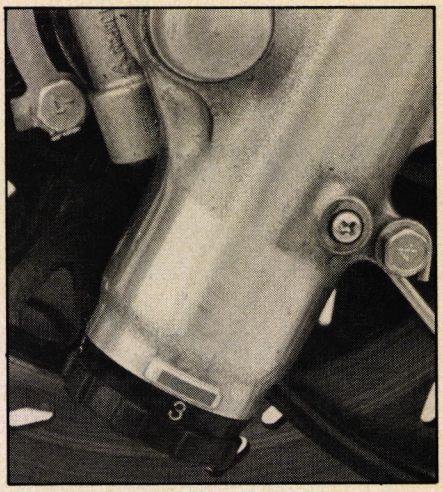
Two combustion chambers in one

Controlled swirl, not turbulence.



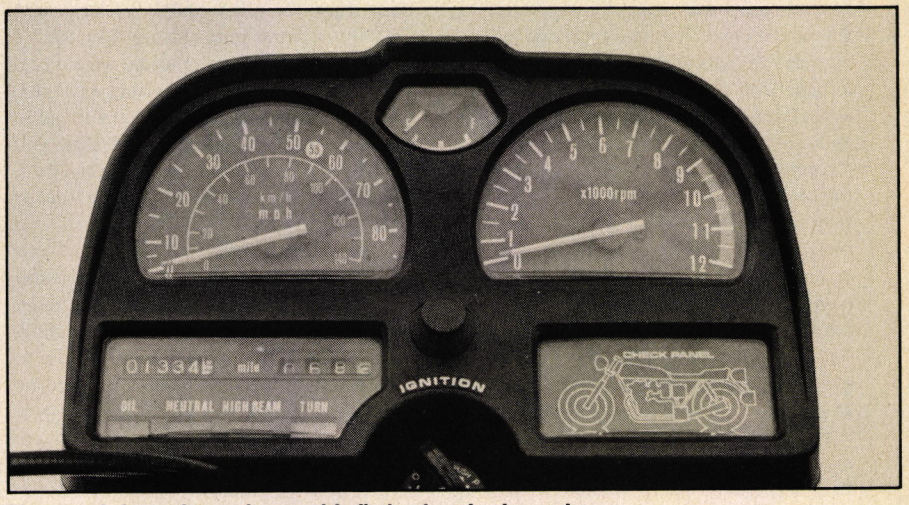
Suzuki's clumsy turn-signal cluster

With advantages self-canceled.



Rebound-damping adjustment knob

Tune in to high-speed happiness.



The search for style continues with distinctive check panel

Monitoring battery charge, brake fluid level, headlamp, taillamp, brake light.

predictable handling is its one-of-a-kind fork. The Kayaba front suspension system retains the same basic air-spring feature introduced on the GS1000, but it now uses stiffer springs and lower air pressure, resulting in a slightly less-progressive overall wheel rate. As a result, the GS11's front wheel rate at the beginning of travel and at full compression is nearly the same as that of the GS1000. At mid-travel, though, the rate is firmer, reducing front-end dive. Unlike the GS1000 fork, the GS11 unit does not rely so heavily upon the sharp progression at the end of travel to keep from bottoming out. Certainly it's still progressive, but it's also more linear in its behavior, splitting the difference between a GS1000's air-spring fork and a conventional fork.

The air is installed at just one point—on the left side of the bottom triple clamp—with a balance tube connecting to the right side of the clamp. The air actually enters the fork tubes through a tiny hole in each tube, inside the triple clamp's pinch area, requiring that both sides of the clamp be sealed with O-rings. And each air-entry orifice is fitted with its own externally accessible shut-off valve which seals that leg off from the other, meaning that one fork leg would retain its air should the other lose its pressure.

The Suzuki engineer responsible for the GS1100's suspension, T. Morikawa, explains that the obvious benefit of a balance system for the fork lies in identical air pressure in each leg. He also notes that the twin shut-off valves insure that if one fork leg loses air pressure, the other will not be affected. In addition, we believe that the location of the air fitting makes twin shut-off valves necessary. The fork leg tends to twist and work within the triple clamp, making air loss more likely and necessitating a secondary shut-off valve as a back-up.

Despite this hydropneumatic trickery, though, the most significant aspect of the new front suspension unit is the incorporation of a four-position preload adjustment

Continued

VIEWPOINT:

Suzuki GS1100ET vs. Honda CBX

11.43 & 11.86: These are times that stir men's souls.

• Pitting the GS1100 against the Honda CBX isn't a comparison: It's a war. There's not much else to call a head-to-head confrontation involving 10 cylinders, 40 valves, 200 horsepower, 270 total mph and only 23 cumulative ticks of the quarter-mile clocks, all provided by just *two* motorcycles. But aside from the obvious performance pyrotechnics that a GS11/CBX clash ignites, it's a comparison that begs to be done because the two bikes are so similar—not in the way they're built or even in the way they run, but in what they were meant to do.

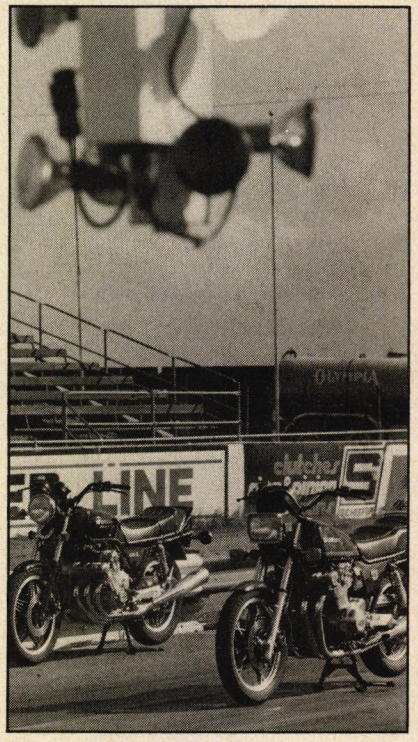
The CBX has been around long enough now (a year and a half) that many of you may have forgotten that Honda built it to out-tech, out-valve, out-zoot and out-power every and any motorcycle ever made. It was to be and to remain a high-water mark in the annals of two-wheeled performance, a machine that would close out motorcycling's greatest era of pavement-searing powerbikes with the most conspicuous example of everything-overkill ever built. The CBX was to be a trophy, to stand forever as a monument to the engineering omnipotence of Honda Motor Company.

And so it did. But only for a short while, not forever. Because no one figured Suzuki would even *try* to out-Honda Honda, let alone succeed. I had been fooled, too, for back when the CBX and XS Eleven and GS1000 all burst onto the scene at once, I forecast that never again would we see performance motorcycles the likes of those. And while I had my foot tightly wedged in my mouth, I also proclaimed that you would never ride a stock motorcycle—past, present or future—that was faster or quicker than a CBX.

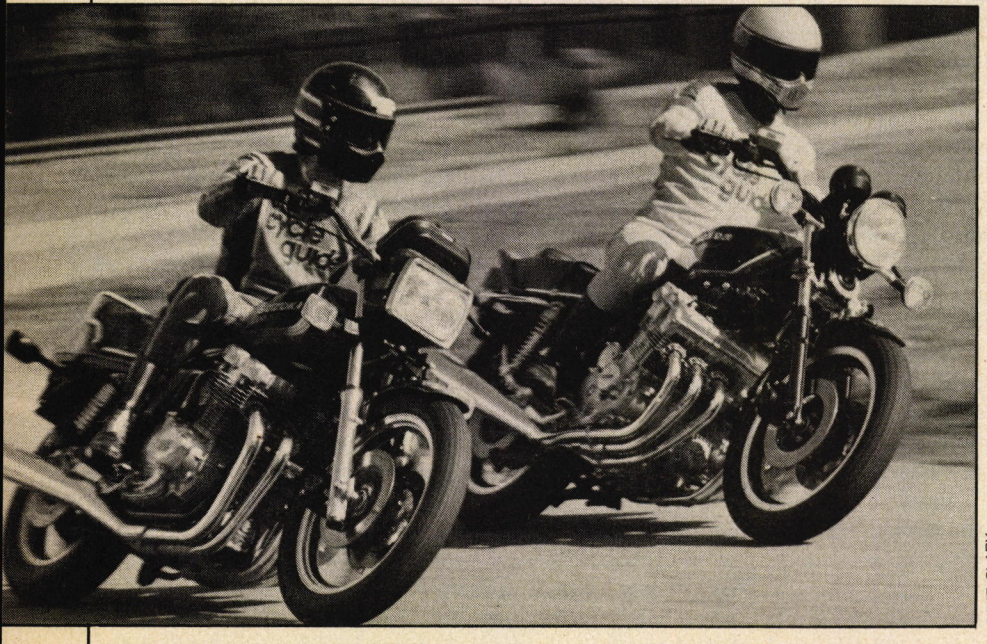
There are no words to describe just how wrong I was. The GS1100 not only is faster and quicker than the CBX, it also is more responsive, better-handling, better-riding, more versatile, more economical, easier to repair/maintain and cheaper to buy. From a visual standpoint, the CBX's long row of cylinders and pipe-organ exhaust system render it more striking, and on paper, its impeccable engineering credentials are more able to stir technocratic emotion than the Suzuki's. But when it boils down to actually riding the motorcycles, the CBX is no match for the GS1100.

Take the quarter-mile, for instance. The GS bests the CBX by .43 seconds and 3.6 mph, and it even tops the less EPA-strangled '78 Six by .23 seconds and .5 mph. Roll-on acceleration in top gear? From 40, 50 and 60 mph, the Four walks away from the Six as though the GS were one gear lower. On the bottom end, the CBX answers wide-open throttle at 1500–2000 rpm with clean but soft acceleration, but doing likewise on the GS stands the thing up on the rear wheel and launches it down the road as though hit from behind by a speeding locomotive. On the top end, the Suzuki outruns the Honda by about five mph.

Overlooking the engine performance and concentrating on the rest of both bikes doesn't change matters one bit. The GS goes around any kind of a corner faster, easier and more gracefully than does the CBX. A number of stimuli (bumpy pavement, suddenly snapping the throttle shut, tapping the brakes) can lure the CBX into a mild tail-wagger in certain turns, but the GS can't be made to act up even if the rider bounces around on the seat when the bike is heeled over. More importantly, the Suzuki is quite willing to be tossed vigorously into a corner or through a chicane, but the CBX, with that giant, 1047cc lump of iron and alloy stuffed into its underbelly, offers more resistance to quick banking maneuvers.



What makes the Suzuki so impressive is that not only does it rank among the three finest-handling superbikes in the world (the others being the GS1000 and the Honda CB750F), it's also one of the three best-riding, most-comfortable motorcycles ever built (the other two are the GS1000 and the Honda GL1100/Interstate). The Six's ride is about average by current standards and so is its comfort factor. Credit the Suzuki's



DAVID CLARK

seat, though, for much of the bike's plush ride. It supports the buttocks better than the Honda's seat, the foam density is spot-on and its shape fits me to a La-Z-Boy T.

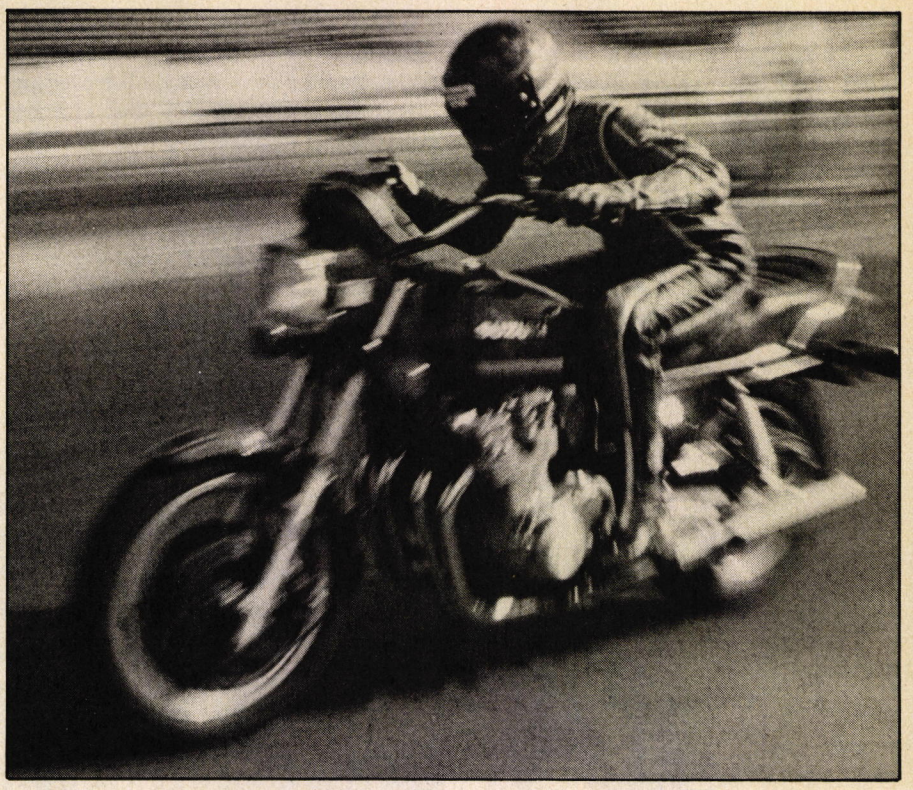
On the other hand, the GS1100's wide selection of suspension adjustments allows it to magically transform itself from Transcontinental Traveler to Backroad Bullet with the mere click of a few knobs. The CBX, too, has an air fork and adjustable compression/rebound damping on the shocks. But the Honda's softest settings are firmer than the Suzuki's, and its range of adjustments is not as wide. Moreover, with the Suzuki's suspension set for optimum handling and the Honda's for the best ride, the GS not only handled better than the CBX, it *rode* more comfortably as well. With the 1100's suspension dialed-in to full-plush and the Honda's on full-race, the Suzuki obviously rode better, yet still outhandled the Honda.

If that's not enough to convert the most hopelessly devoted CBX aficionado, try these: The GS's worst fuel consumption figures are not far below the CBX's best. In addition to costing about $525 less than a CBX, the Honda's more-complicated adjustment procedure for its shim-type valves (of which there are 50-percent more, to boot) and its sheer number of engine internals insure that maintenance and major repairs will be costlier. And the ultra-expensive engine cases, cylinder and cylinder head on the CBX are all more vulnerable to damage in the event of a fall.

A well-informed technoid might succeed in convincing me that design-wise, the CBX's engine is superior to the Suzuki's. He'd argue that it is in a milder state of tune than the GS, that it has a lower piston speed at any given road speed and in any given gear, that the stresses on the engine are not as great, and that if the CBX were pumped up to GS11-level it would blow the Suzuki right off of the roadway. But it isn't and so it doesn't. And even if it were, there'd still be the rest of the CBX to contend with, since it wouldn't measure up to the GS1100.

Besides, I don't care about any of that. What I do care about is how well a bike performs out on the road. You could stand next to a CBX until you were blue in the face and *tell* me why that 24-valve, six-cylinder smoothie is superior to a 16-valve, four-cylinder GS1100 any old day. But when you were finished telling, I'd then take you out on the road—any road, be it straight, curved, bumpy or paved with recycled brake pucks—and I'd *show* you why you were wrong. Because in every category other than the exhaust note and the pipe count, the GS is a more functionally competent product.

That's why it's easy to position both of these bikes for the potential hyperbike buyer. The CBX is for the talkers; the GS is for the *do*ers. —*Paul Dean*



(which, unfortunately, requires that the handlebars be dismounted) and four-position adjustable rebound damping. The damping adjustment is controlled by a big plastic knob at the bottom of each fork leg. The second damping position is 18 percent firmer than the first, the third is 33 percent firmer than the No. 1 position and the fourth is 43 percent firmer. The spring preload adjustment provides a 75-percent range between the softest and firmest settings.

This unparalleled adjustability, along with the high tunability of the rear suspension, does the job on the racetrack as effectively as on the open road. Associate Editor Dain Gingerelli and I spent an afternoon hammering the GS11 around Suzuki's Ryuyoo test track to prove that fact to our satisfaction. We know that the racetrack isn't the same as the street, but a bike that displays the GS11's character in full-race mode will be completely trustworthy at spirited street speeds.

On the track, the GS11 impressed both of us with its honesty and predictability. All the virtues of the GS1000 have been retained. It steers precisely and clings to the racing line without bobbles. Stability is the keynote—rather than Honda CB750F-like agility—perhaps because the high-speed sweepers of Ryuyoo demand it. Even so, the GS1100 is the only hyperbike other than a GS1000 that doesn't display a mind of its own at speed. It flat does what you ask of it. With soft suspension settings it wallows a bit, but each stage of suspension adjustment yielded more precision until Gingerelli settled upon position No. 3 for fork damping, fork preload and shock damping, and position No. 4 for shock-absorber spring preload as the optimum go-fast set-up for his 150 pounds.

Though the GS1100 isn't exactly cat-quick, the steering has a light feel. A 10mm reduction in front-wheel trail and the proximity of steering head and fork tubes (reducing steering inertia) do the job despite the GS11's weight. The leading-axle fork also provides greater tube/slider overlap, locating the front axle more positively than a straight-leg fork. And the RM-style swingarm keeps the rear wheel tracking in place. This is much of why the big GS follows the racing line without straying, while the resilient suspension keeps the tires on the ground and working hard.

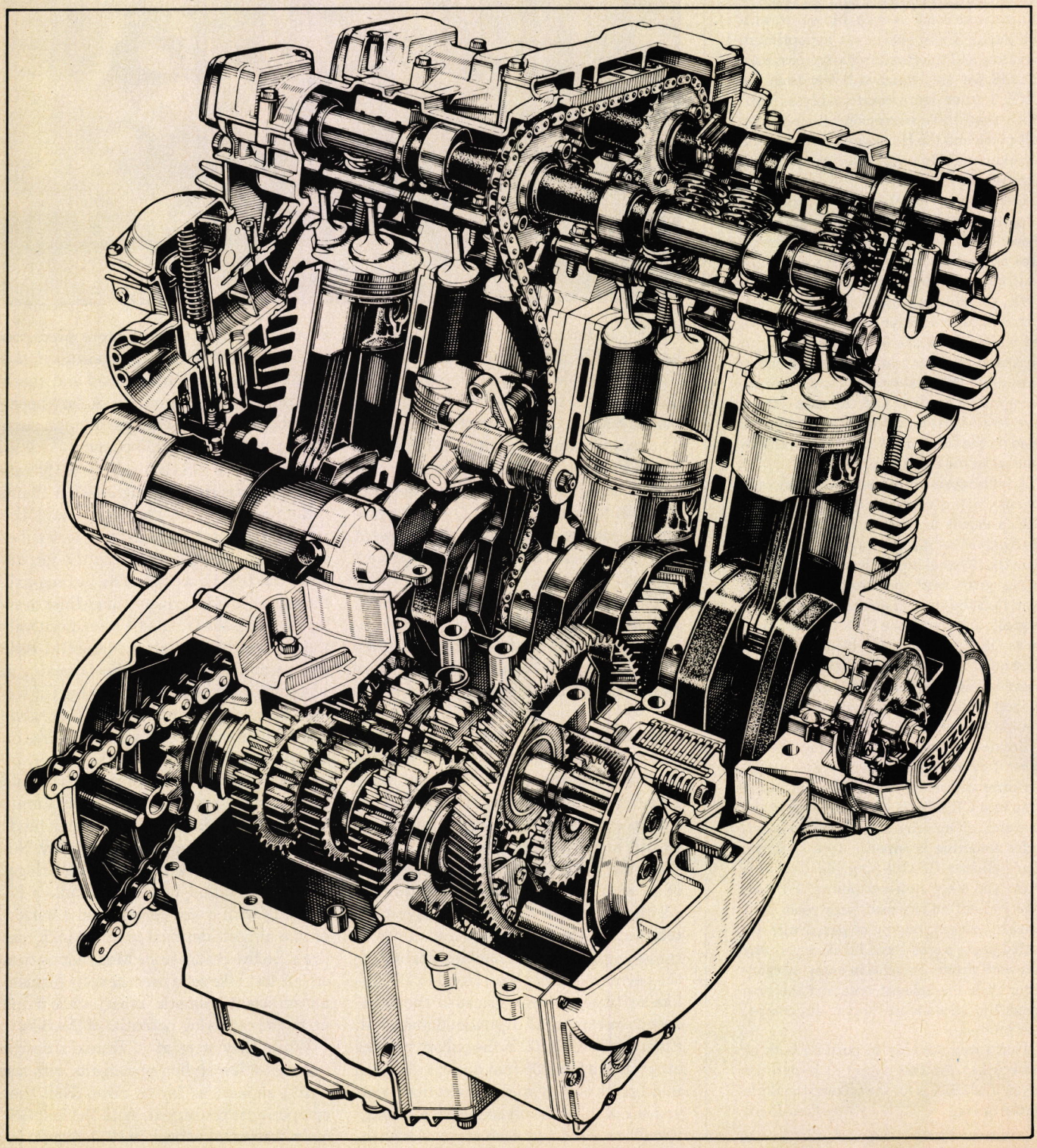
The 17-inch rear tire of the GS11 could have proven a handling problem simply because the wide profile of fat tires tends to compromise straight-line stability. Suzuki engineers worked closely with Bridgestone and Dunlop, however, to build a 17-inch tire with a stiff carcass and a narrow profile almost identical to an 18-inch rear tire's. So the Bridgestone Mag Mopus tires on our test bike set a precedent by furnishing sufficient cosmetic impact while living up to the cornering potential of the bike.

While they were at it, Suzuki's design team set a few styling precedents with the GS11, at least as far as bikes from that company are concerned. With the first GS-series four-strokes back in 1977, Suzuki in-

Continued

augurated a line of resolutely functional street bikes, but their styling often was labeled as too conservative. According to T. Mizuki of Suzuki's Product Planning department, though, the GS11 has been styled to reflect its engineering sophistication. The stylists succeeded in most cases, notably in the well-integrated lines of the sidepanels, seat and tail section. The impulse to make the GS11 especially distinctive might actually have hurt the bike's appearance, however. The faired-in rectangular shell around the halogen headlight and the huge instrument cluster make the bike seem bulky. Moreover, the unique integrated switch that operates both the turn signals and the high-beam flasher is clumsy to operate. And although the instrument panel displays extremely attractive dials, the check panel—which features a silhouette of a motorcycle on which idiot lights glow to indicate various system failures—seems better suited to a Datsun 280ZX. Also, you will have to pay close attention to the gas gauge and tripmeter, because there wasn't sufficient under-tank clearance to mount a manual fuel tap. It's nerve-wracking to ride without reserve capacity, but since you have about a gallon in the 5.2-gallon tank when the gauge bottoms out, there's no reason to panic.

Whatever the niggling failures of the Suzuki GS1100ET, whether in styling or in throttle response, I can't complain that it doesn't get me riled up. I get Speed Fever

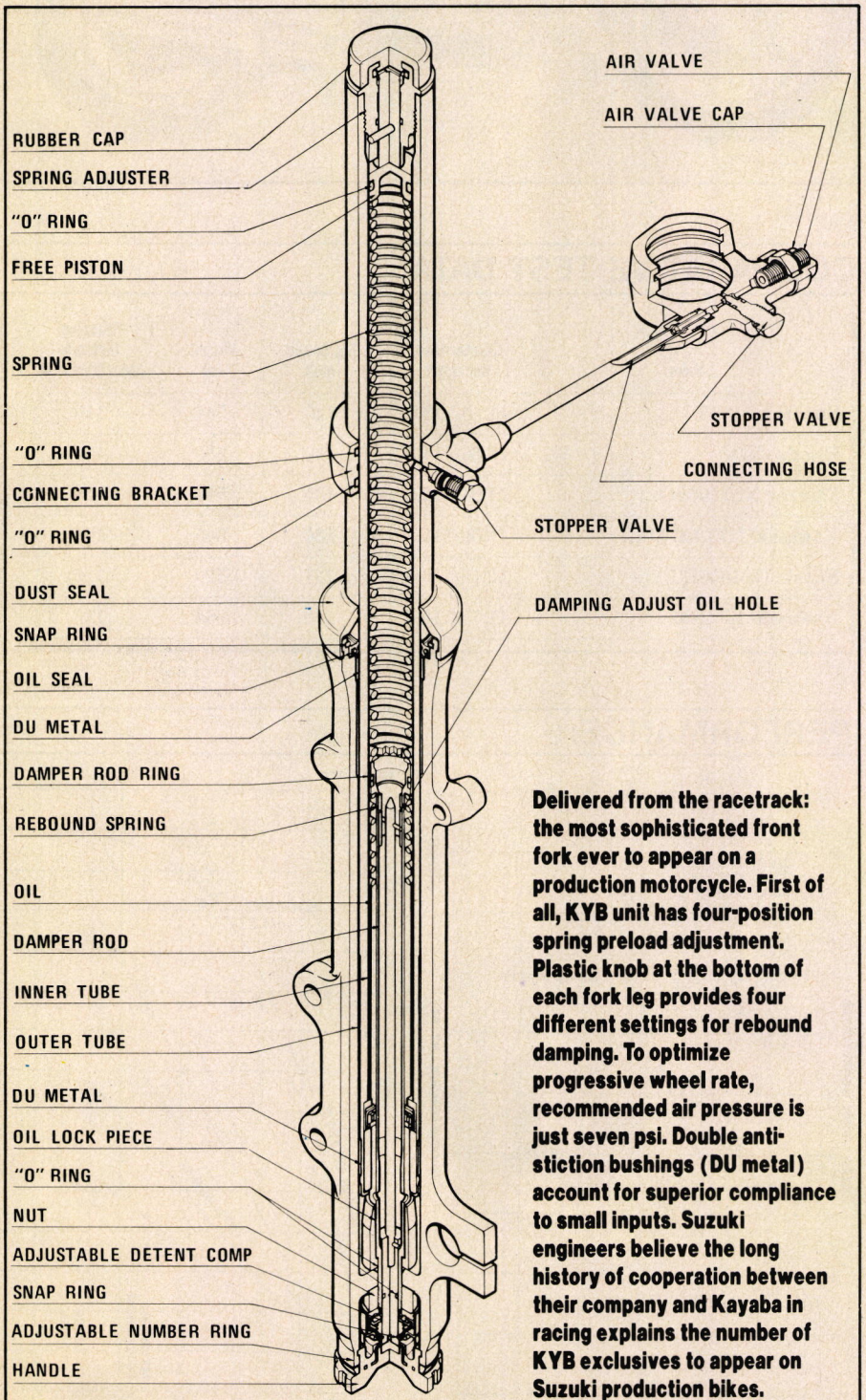


just looking at it. Any bike that can outaccelerate a CBX, stay glued to the rear fender of an XS Eleven in a contest of roll-on acceleration, ride like a Honda GL-1100 and be as easy to live with as a GS1000 will do that to you.

Even better, the X-type GS can cope with every aspect of motorcycle life—from instantaneous cold-starts to 44-mpg fuel economy. You can ride it at the speeds within reach of its remarkable engine without incurring the wrath of Father Physics. Twist the throttle of some rogue bikes and you soon find yourself dueling for control. But not with the GS1100. That's the difference between a bike that belongs in the High Speed Hall of Fame and one that only deserves Honorable Mention.

There's no doubt in my mind that the Suzuki GS11 wins the Quickest, Fastest and Best Sweepstakes. If you don't think so, I invite you to bring your scooter around to *CG* for a friendly little contest.

And bring your pink slip, too. •



Delivered from the racetrack: the most sophisticated front fork ever to appear on a production motorcycle. First of all, KYB unit has four-position spring preload adjustment. Plastic knob at the bottom of each fork leg provides four different settings for rebound damping. To optimize progressive wheel rate, recommended air pressure is just seven psi. Double anti-stiction bushings (DU metal) account for superior compliance to small inputs. Suzuki engineers believe the long history of cooperation between their company and Kayaba in racing explains the number of KYB exclusives to appear on Suzuki production bikes.

Ride Review

• Anyone who says that the GS1100 is not the most comprehensive collection of street-bike superlatives has aligned himself with the forces of the misinformed. You'd have to be a fool to deny that the biggest GS captures the "most" listing in every meaningful performance category.

Well, I don't deny it, but having the most to offer doesn't necessarily make the GS the most desirable street bike in my book. Perhaps it's simply a function of the big Suzuki's near-perfection, but I can't ignore the bike's jumpy throttle response. I don't want to have to battle the thing at less than WFO speeds. I prefer the overall balanced performance of a GS1000S, say, to the brawnbike tendencies of the GS1100.

In short, I have to admit that anyone who hasn't ridden the GS1100 will not have sampled the most, but I don't confuse most with best. *—Larry Works*

• I'm told by those with their fingers on the pulse of America's street riders that the question on which the fate of the GS11 rests is whether or not it's better than a CBX. While I understand that juxtaposition as a spec-sheet shootout, and while I can see how some people might consider the two motorcycles in opposition, to me there just isn't any contest.

The reason is the Suzuki's multiplicty of roles. This motorcycle can, it seems, do anything indecently well, a trait it inherits from the GS1000 and magnifies to some kind of final extreme; if you can go faster in a straight line, around corners or down to the store than you can on a GS11, you've probably discovered the Ultimate Motorcycle. I mean, you can even ride this thing for hours without getting numb-butt in more comfort than most pure "touring" bikes. To me anyway, this is the best multi-role bike in the world. *—Steve Thompson*

• I wish that it were 1965 again and that I owned a GS11. This bike doesn't deserve today's EPA-strangled environment. It revs to the beat of the Sixties musclecars—brawny engines and high-octane horsepower. Every time I ride the 1100 I can feel it sending me that message through its four sensitive CV carbs. I can't even keep it at a steady 55 mph on the freeway. At every expansion joint the throttle snaps open a millimeter, enough to make the bike rear up and accelerate. The GS11 works best with the throttle held wide open.

If it were 1965 again, I could ride it wide open all the time. I'd go to Nevada (where there was no maximum speed limit in 1965) and wail the 105-hp engine past its redline in top gear. I wouldn't roll off until the Utah border.

Unfortunately, it's 1980. And I'm a frustrated speed addict with a hell of a fast fix I can't use. *—Dain Gingerelli*

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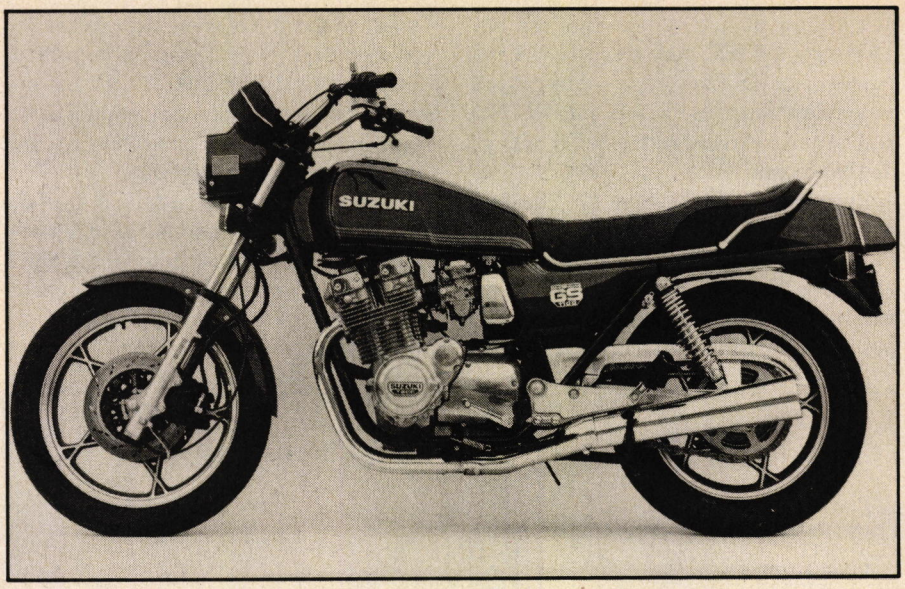
Suzuki GS1100ET



SPECIFICATIONS:

IMPORTER: U.S. Suzuki Motor Corp.
13767 Freeway Drive
Santa Fe Springs, California 90670

CATEGORY: street

SUGGESTED RETAIL PRICE: $3669

ENGINE

Type ..... four-stroke transverse vertical four
Valve arrangement ..... double overhead camshafts, four valves per cylinder
Bore and stroke ..... 72.0mm x 66.0mm
Displacement 1074.9cc
Compression ratio 9.5:1
Carburetion ..... four 34mm Mikuni constant-velocity
Air filter ..... disposable paper element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... transistorized breakerless
Charging system ..... 12-volt; alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive ..... helical gears
Primary drive ratio 1.775:1
Clutch ..... wet, multi-plate
Final drive type ..... #630 chain (¾-in. pitch, ⅜-in. width)
Final drive ratio 15/42: 2.80:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.50	12.42	6.0
II	1.78	8.85	8.5
III	1.38	6.86	10.9
IV	1.13	5.62	13.4
V	0.96	4.77	15.7

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... air-spring, 37mm stanchion tube diameter, 4-way adj. spring preload, 4-way adj. rebound damping/5.8 in. (147mm)
Rear ..... 5-way adj. spring preload, 4-way adj. rebound damping/4.3 in. (109mm)

BRAKES

Front ..... dual single-action hydraulic calipers, 10.8-in. (275mm) discs
Rear ..... double-action hydraulic caliper, 10.8-in. (275mm) disc

TIRES

Front ..... 3.50V19 Bridgestone Mag Mopus L303
Rear ..... 4.50V17 Bridgestone Mag Mopus

DIMENSIONS AND CAPACITIES

Weight ..... 544 lbs. (246.7kg)
Weight distribution ..... 45.4% front, 54.6% rear
Gross vehicle weight rating ..... 1030 lbs. (467.2kg)
Wheelbase ..... 60.0 to 61.3 in. (152.4 to 155.7cm)
Seat height ..... 33.3 in. (846mm)
Handlebar width ..... 31.3 in. (795mm)
Footpeg height ..... 13.2 in. (335mm)
Ground clearance ..... 5.8 in. (147mm), at exhaust pipe
Steering head angle ..... 28.0 degrees from vertical
Front wheel trail ..... 4.06 in. (103mm)
Frame ..... tubular mild steel, double front downtubes
Oil capacity ..... 3.6 qt. (3.7l)
Fuel tank ..... steel, 5.2 gal. (19.5l), no reserve
Instrumentation ..... speedometer, odometer, tripmeter resettable to zero, tachometer, fuel gauge, check panel

PERFORMANCE

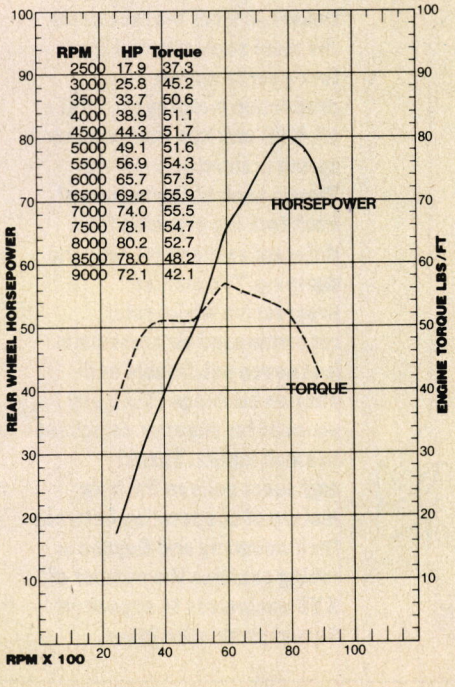
Fuel consumption ..... 37 to 49 mpg (15.7 to 20.8 km/l)
Range, maximum ..... 192 to 255 miles (309 to 410 km)
Speedometer error, 30 mph indicated ..... 29 mpg actual
Speedometer error, 60 mph indicated ..... 58 mph actual
Best ¼-mile acceleration ..... 11.43 sec., 118.3 mph (190kph)
Top speed (calculated) ..... 140 mph (225kph)
Stopping distance from 30 mph ..... 30 ft. (9.1m)
Stopping distance from 60 mph ..... 116 ft. (35.4m)

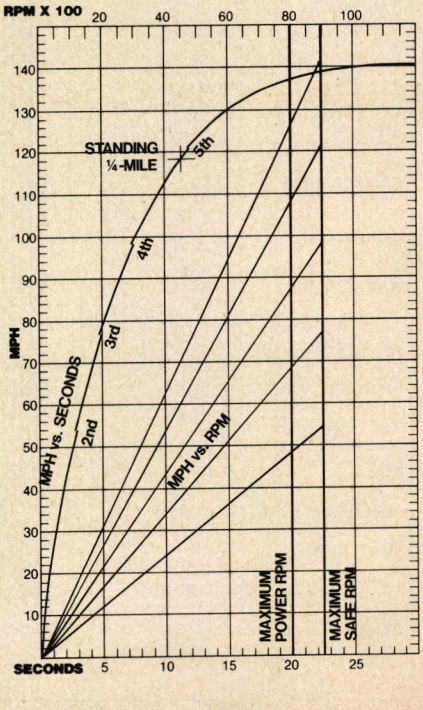
All weights and measurements are taken with machine unladen and fuel tank empty.

COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Suzuki GS1100	11.43/118.3	140	544	116
Honda CBX	11.86/114.5	130	555	145
Yamaha XS1100SG	11.94/112.6	135	572	129
Kawasaki KZ1000 MkII	12.06/110.3	130	545	129
Suzuki GS1000EC	12.15/110.9	131	520	126
Kawasaki KZ1300	11.79/115.7	140	664	133

PERFORMANCE:





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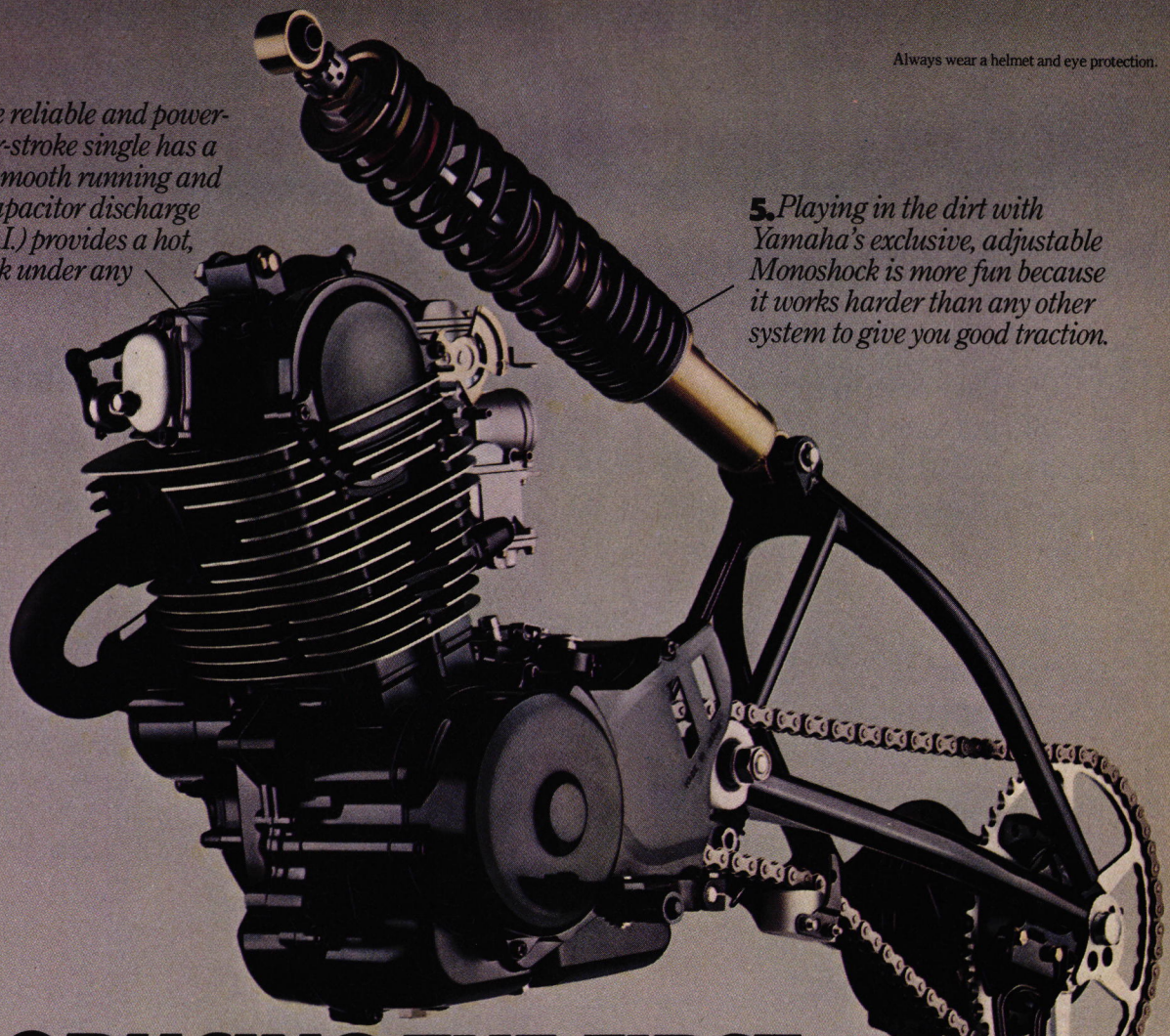
5. *Playing in the dirt with Yamaha's exclusive, adjustable Monoshock is more fun because it works harder than any other system to give you good traction.*



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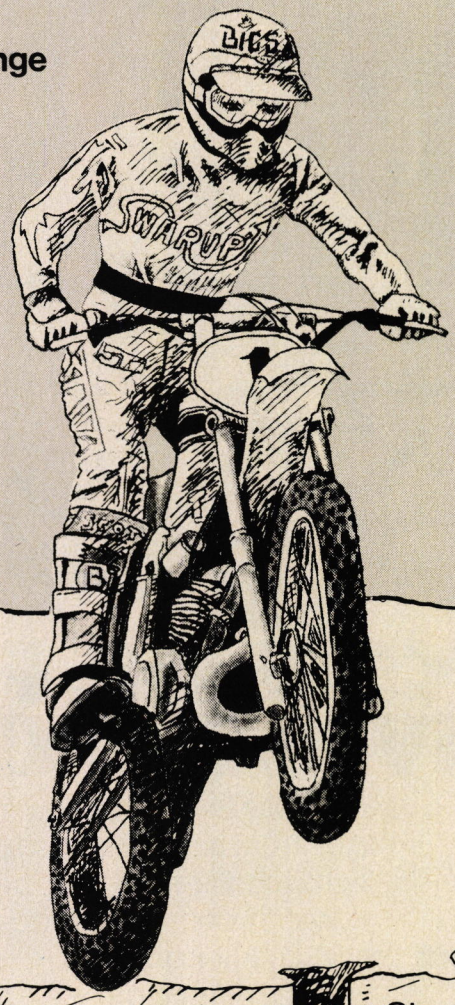

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PRODUCT EVALUATION:

Seiko GJB05 Digital Stopwatch

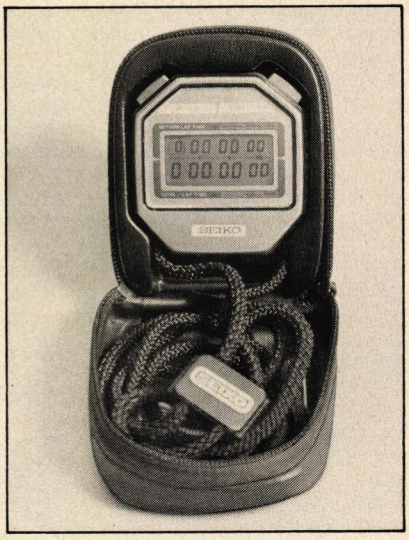
Obligatory but expensive race-watching equipment.

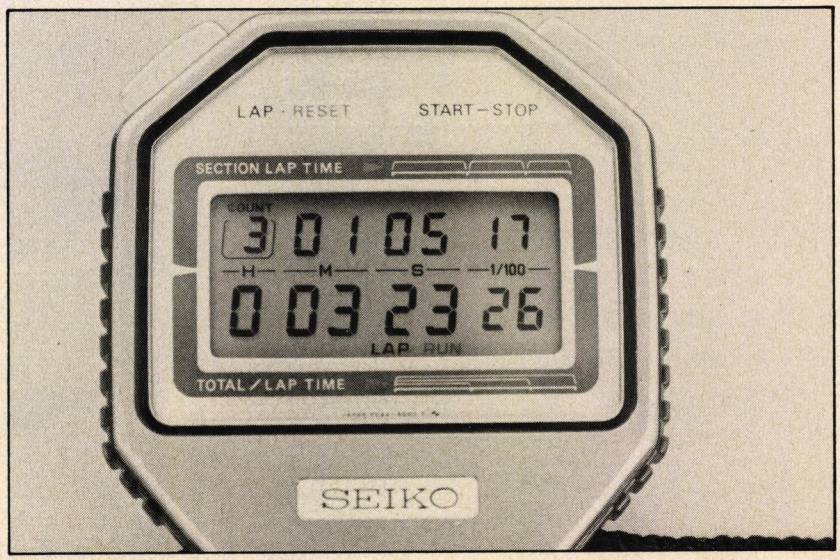
• You're supposed to wear a stopwatch at the roadraces, you know. I think it's a rule or something, like wearing aviator sunglasses and running shoes. It doesn't matter whether you're in the stands or in the pits, the dress code applies.

A stopwatch plays an important role in race-watching, of course. It lets you keep track of your favorite's lap times as his race strategy unfolds. You can measure the interval between him and his closest rival. And there's a bunch of other things you can do to help you determine who's racing and who's stroking.

I'm a watch freak at the races, but I've noticed a single problem common to every stopwatch/wristwatch, from some hulking Rolex to a flat-black number from Porsche Design to the ubiquitous $29.95 Casio—each can perform only one function at a time. If they have a Taylor-flyback mode—the most valuable of any stopwatch function—you can monitor one rider's lap times continuously. They also can measure the interval between two racers. You can measure total elapsed time. But you can't measure more than one thing at a time, which can prove as aggravating to a racer and his pit crew as it can for a spectator.

The Seiko GJB05 Digital Stopwatch provides an appealing alternative to a battery of fabulously expensive Cronus, Chronodek or Heuer chronographs. Its face displays twin digital readouts: lap time and total elapsed time. Elapsed time can be recorded up to 10 hours. Lap time is recorded to a hundredth of a second. A counter records the number of laps (or splits) you've timed. The display itself is LCD (liquid crystal display) rather than LED (light-emitting diode) to be more readable in sunlight and to consume less energy from the watch's single battery. The cheap vinyl case won't impress you, but the lightweight 3-ounce Seiko's integrated circuitry offers





Top line for lap time, bottom for ET

Working in the Taylor-split mode, the racer's friend.

PHOTOGRAPHY: DAVID CLARK

four modes that are the last word in function.

Basically, this watch can do four different things:

- First of all, there is a simple start/stop mode, just like any inexpensive sweep-second hand stopwatch, allowing you to record pitstops or single qualifying laps.
- The second function provides continuous running time broken by time-outs—of limited application in racing, actually.
- The third function lets you record the lap time of your favorite rider on a single lap while determining the interval between him and his rival. Or you can measure a qualifying lap while simultaneously measuring a split through a particular section of the track, like Turn Two.
- The fourth function proves the most useful, for it monitors a racer's lap times continuously (resetting itself while simultaneously presenting you with the display of the previous lap's time). At the same time, it gives you elapsed time on the race. Or you can look at it as a way to measure various section splits for just one lap. At the same time a display in the top left-hand corner of the face will record the number of laps you've timed up to 19. A flashing "Run" display lets you know this Taylor-flyback mode is working.

In practice, the Seiko proves supremely functional and useful, but there are a few things you must keep in mind while operating it. First of all, the stainless steel and plastic case doesn't qualify as water-resistant—a flaw it shares with most chronographs (although ironically not the cheaper Cronus). So when there's rain on the track, it's best to be careful of your investment. The small, button-shaped, silver-oxide battery has a lifespan of five years, when the display will flash to inform you that replacement is required (though without affecting the watch's accuracy, Seiko claims). The LCD panel may need replacement at the end of five years as well. Furthermore, the battery is sensitive to extreme temperatures, which will dim the display. The perfect operating range is 108–14 degrees Fahrenheit.

In sum, the Seiko GJB05 is easy to use and more functional than any of the alternatives. It's not just another shallow development in time-keeping. It's a lightweight, full-service aid to my enjoyment and understanding of racing. I would no more be caught without it in Laguna Seca's pit lane than without my Bausch & Lombs and Adidas.

The Seiko carries a suggested retail price of $125—restricting it unfortunately to professionals and status-freaks, since a comparable Chronus can be had for less than $75. Still, if you simply must have one, contact the Seiko Time Corporation, Dept. CG, 650 Fifth Avenue, New York, New York 10019. —*Michael Jordan*

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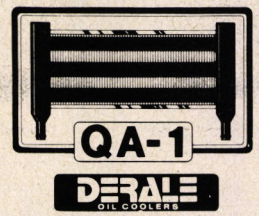

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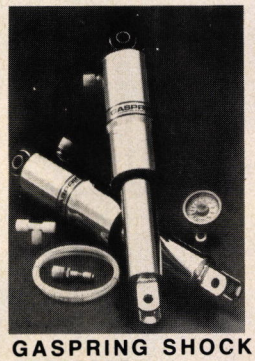

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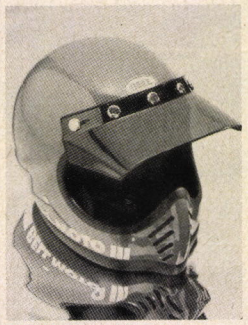

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A pro's-eye view of

"It was a great idea for motocrossers... it's a great idea for streetbikes."

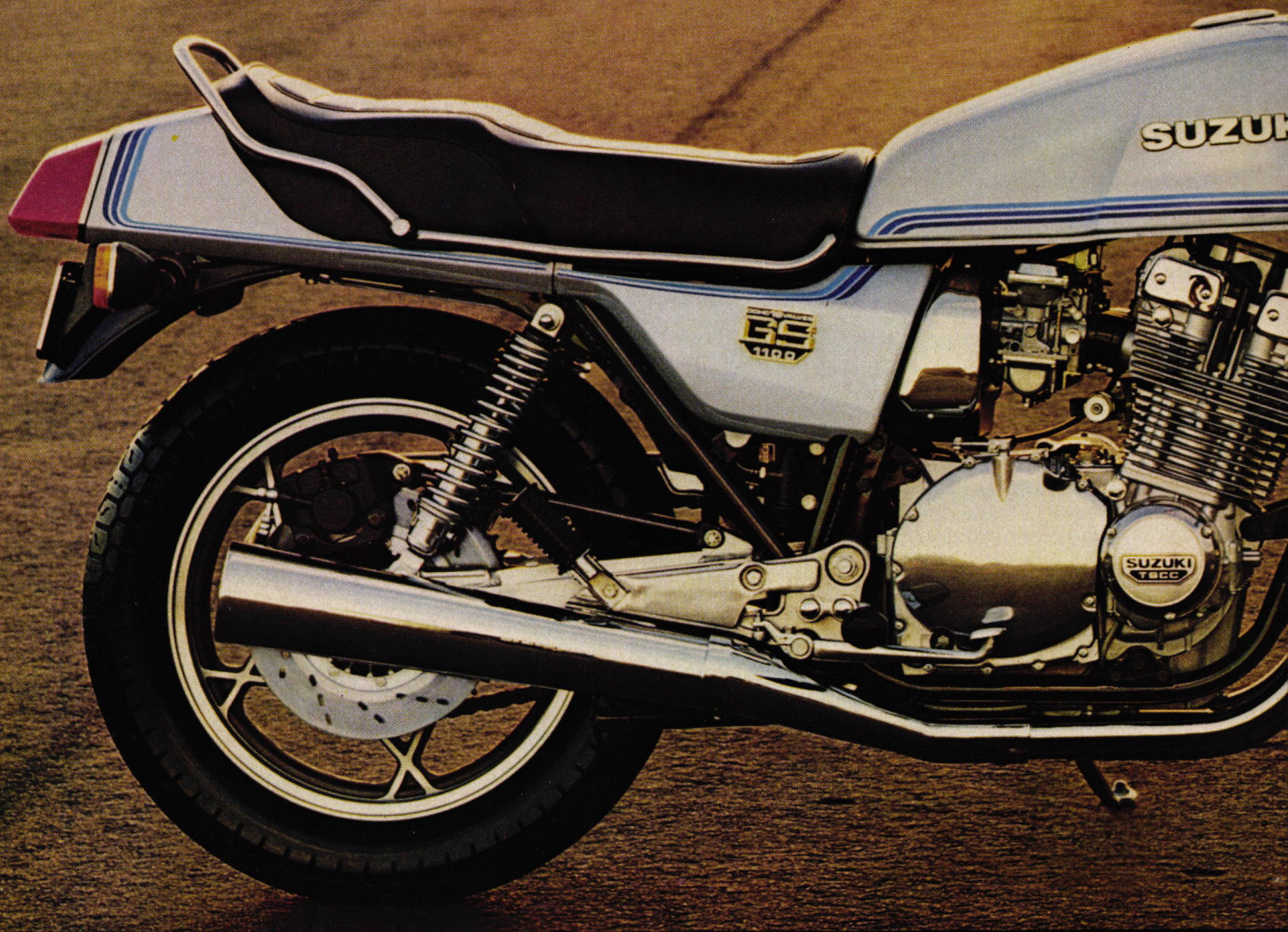
The great idea? A boxed aluminum swing arm. What's great about it? "Won't flex... less weight on the shocks." By the way, the shocks offer 4-way rebound damping and 5 load settings. "This suspension system plus the light chassis is what makes this Suzuki such a great handler."

"This 16-valver is a steamer."

That's Terry's way of saying Suzuki's new 4-stroke mill is very quick. Should be. After all, the 16-valve head with patented Twin Swirl Combustion Chamber design produces more power than conventional 4-strokes. He also likes the lightweight rocker arm: "...eliminates costly valve shims." And he praises the heavy-duty clutch this way: "I can really hammer it on."

"It's an easy bike to work on."

"You can adjust the valves just by removing the valve cover. Saddle lifts right off so it's easy to get at things. And the pointless transistor ignition eliminates the hassle of adjusting points."



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Ride safely. Always wear a helmet, eye protection and appropriate riding apparel. Member Motorcycle Safety Foundation

the new GS-1100 E.

"One fork doesn't end up doing all the work."

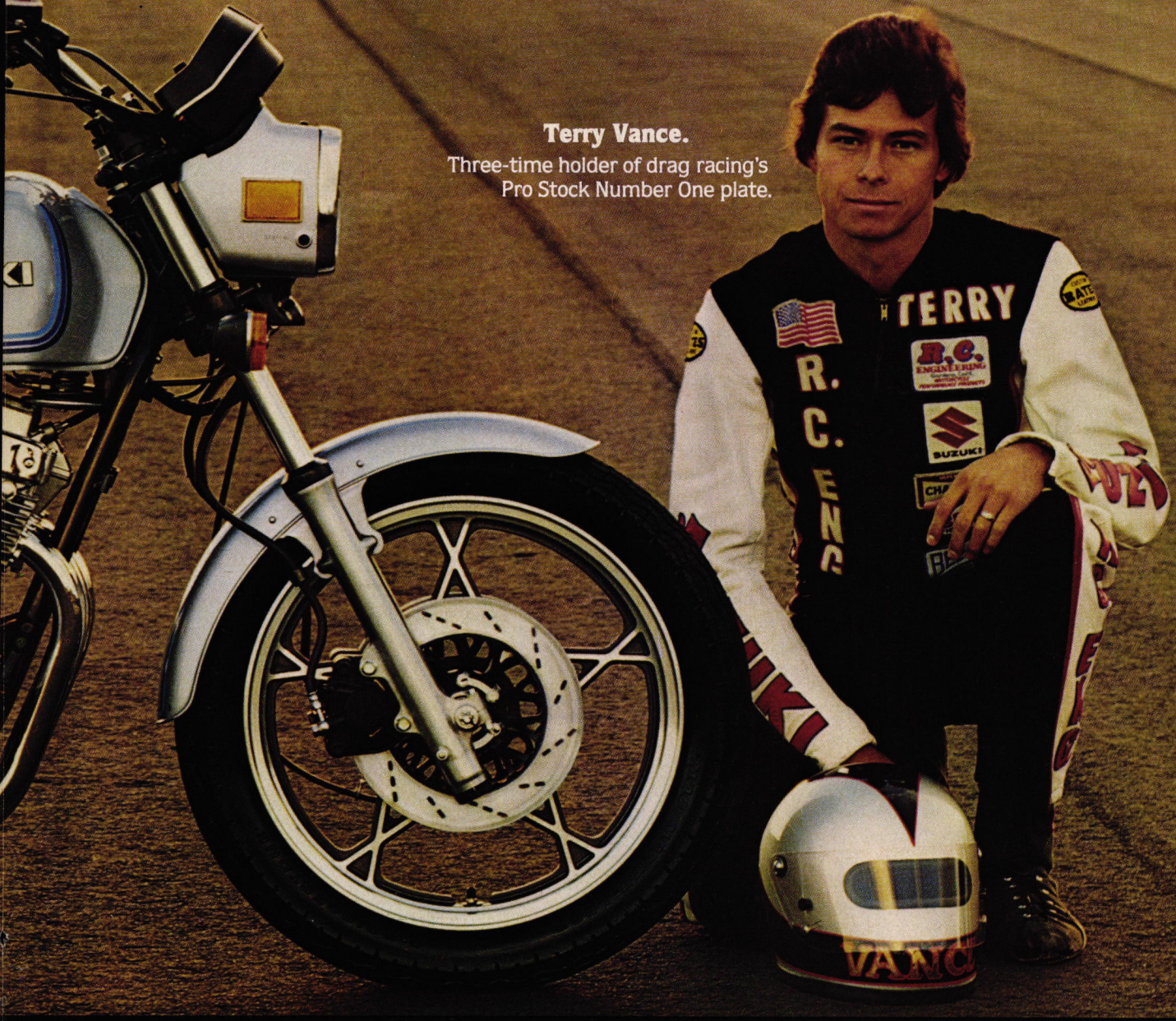
That pretty well sums up the benefit of the balance tube which connects the front air forks. And what do the 4 load settings and 4 damping adjustments add up to for Terry? "Perfect tuning."

"Sure, I like the color... it's mine."

What Terry means is, the paint job is similar to his silver Pro Stocker. He also had kind words for the built-in check circuit: "Nice safety item."

"These brakes won't fade."

One reason is, the beefy triple disc brakes are slotted to reduce heat during hard stops.



Terry Vance.
Three-time holder of drag racing's Pro Stock Number One plate.

1980 GS Model

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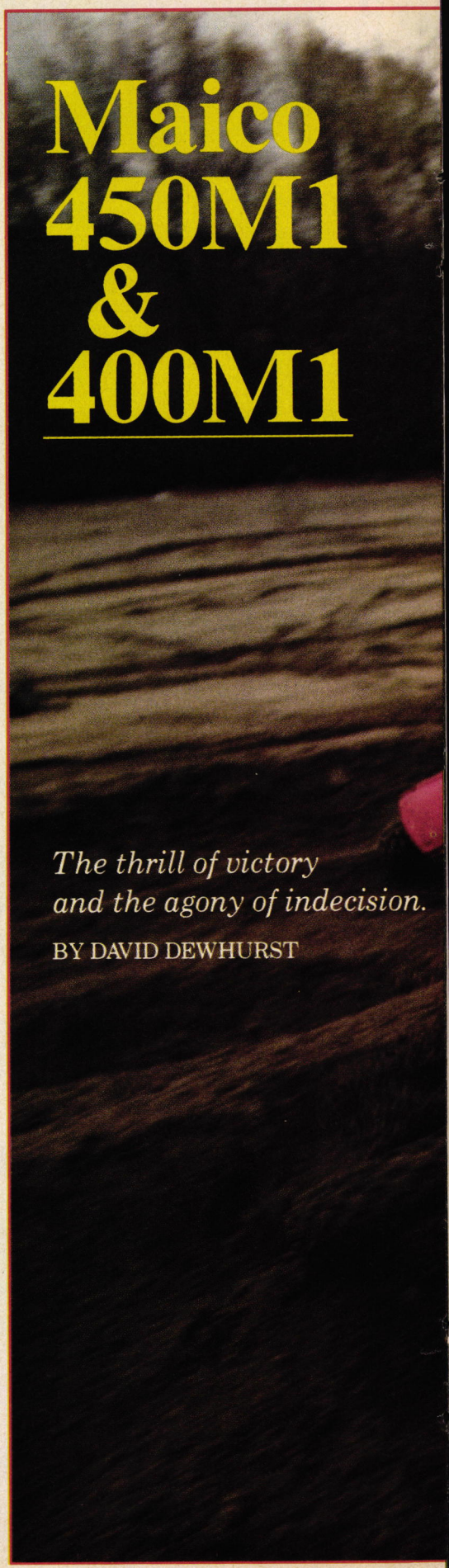
Maico 450M1 & 400M1



The thrill of victory and the agony of indecision.

BY DAVID DEWHURST

Deep down inside, every Open-class motocross rider who never has raced a Maico harbors a desire to do so. Most of them already have heard all of the Maico horror stories—that those bright red bikes cost a lot, that you practically need a degree in motocross tuning to keep them running and that a Maico requires a bit of shade-tree re-engineering to make it fully trackworthy. But knowledge of those ever-present annoyances doesn't overshadow another equally well-known Open-class fact: When a Maico works properly, it *really* works. Nothing else turns like it or hooks up like it or does as good a job of making just about anyone a better rider.

A lot of people, though, are confused about the fact that Maico sells *two* Open-class models, this year called the 400M1 and 450M1. Short of making a typically American-style decision to opt for the bigger of the two, it's hard for you to know which one is the right one for your particular needs. After all, Maico's brochures and advertisements don't tell you, nor can you look elsewhere for an example, since no other motorcycle company makes more than one Open-classer. Indeed, the biggest of them all, Honda, has decided that because Open-class sales are so limited, it's not worth the company's time to build one at all. And yet here's Maico, a small, family-owned outfit tucked away in darkest West Germany, building *two*.

What's even more mystifying to non-Maicophiles is that aside from their respective bore sizes (77mm vs. 82mm) and the decals on the side number plates, the 400 and 450 are indistinguishably identical. They even perform with startling similarity—enough so that you might even wonder why Maico went to all the bother.

It wasn't always this way. Until the past few years, Maico's 450 was a brutal, for-pros-only motocross weapon. Some world-class riders would detune the violent motor for certain tracks just to make the bike less-tiring in a long moto. That's why Maico continued to offer the sleeved-down 400 as an alternative for riders who didn't want or couldn't use the 450's brutal horsepower.

Today it's a different story. Even though both Open Maicos now make as much or more horsepower as those older 450s, their powerbands have been mellowed. So the new 450 is no more violent nor harder to ride than the 400. As a matter of fact, in many ways the bigger bike is even *easier* to pilot over a rough course. Consequently, choosing the right Open-class Maico is even more confusing than ever.

Your confusion will be intensified once you learn that for 1980, one of the things that had helped Maicos become legends in their own time—the chassis—has been radically changed. As a result, an M1 feels totally different from any previous Maico—and unlike any other motocross bike, as well.

Maico's designers decided revamping the chassis was necessary because they believed simply stretching the suspension travel over the years had forced too many compromises in areas such as seat height and front-fork rigidity. Among other things, they wanted the new Maicos to have a reasonably low seat, and to steer once again with the kind of bulls-eye precision that is possible only with a strong, flex-free frame and front suspension.

With a foot of travel required at both ends, however, the task wasn't easy. But one glance at a new Maico tips you off as to how they accomplished their goals. The seat angles downward sharply toward the front, so although the aft end is a mile high to permit sufficient wheel travel beneath it, the part where the rider normally sits is only a fraction of an inch higher than that of last year's 10-inch-travel machines. Moreover, despite a low, flat handlebar, the location of the grips is unusually high—not just relative to the low-slung seat, but to the ground as well. With a 2.5-gallon gas tank that slopes up toward the steering head, the Maico looks as though the combination of a 300-pound rider and a huge jump had bent it in the middle.

The handlebar mounts are high essentially because the steering head is high. And that's due in part to the very long travel of the air-spring fork and because the steering head is 20mm taller than before (adding rigidity to that critical junction of backbone and front downtubes). The longest overlap (8.5 inches) between the fork tubes and slider legs we've ever heard of further increases the altitude of the steering head, as well as giving the fork an unparalleled resistance to side-to-side flex. Actually, because of this overlap and the length of travel, the steering head would have been even higher were it not for the M1's ingenious drop-center lower triple clamp that allows the long sliders to reach full compression without interfering with the clamp.

Another obvious trick to bolster rigidity is the M1's massive 42mm fork tubes, which are 4mm larger in diameter than any tubes ever before used on a dirt bike.

Continued

PHOTOGRAPHY: DAVID DEWHURST

They're stronger by virtue of their increased circumference and yield a 10-percent increase in contact area inside of each triple-clamp bore. Furthermore, each leg holds a whopping 570cc of oil (up from 370cc in '79), insuring that there will be no damping fade from overworked, overheated oil.

If you think the fork is different, check out the unique welded-together, rectangular cross-section "Megaform" frame backbone. It's strong, just like everything else on the M1, but mainly it takes up as little room as possible so that the short gas tank can have sufficient capacity without being annoyingly tall or wide. A short tank also is important because it's necessary in these days of foot-long travel for a rider to be able to sit as far forward as possible for the maximum amount of front-wheel traction in the corners.

Obviously, the motorcycle that has emerged from this major chassis rethink takes more than a little getting used to. When you first plop down on the 37-inch-high seat and latch onto the armpit-level handgrips, you don't know whether to act like Bob Hannah the motocrosser or Peter Fonda the E-Z rider. Once you get moving, it feels like you're perpetually riding uphill because the handlebar is so high. You're forced to employ an unusual amount of upper-body strength to work the handlebar in the turns, and sliding back on the steeply sloped seat is very difficult. In all, you spend about a full day feeling as clumsy as the proverbial ox before you grow accustomed to the Maico's ways.

The odd thing about it all is that once you get yourself adjusted to the bike's weirdness, you start to *like* it. A lot. After a while, in fact, every other motocross bike you ride feels unusual.

If that sounds like bad news to all of you long-standing Maico fans, fear not: The traditional steering and handling magic still is there. The new Maicos sometimes even seem to turn corners more crisply than the previous ones, which were no slouches. But if so, it's due to the lack of front-end flex rather than as a result of any steering changes, for the geometry is virtually the same as before.

Whatever the cause, the effect is that you can stuff an M1, either of the 400cc or 450cc variety, into a corner just as hard as you like and still be able to turn it inside of any other Open-class machine. Both M1s can be made to rail all the way around a corner on the berm; but they'd rather use that outer rim like a billiard cushion, slamming into it just long enough to change direction before cutting down off of it onto the next straight.

Some of that turning precision must be credited to the front fork which, even though calibrated with slightly stiff springing and damping to meet Euro-track demands, offers the best action ever found on a stock Maico. Of course, first we ignored the factory's recommendation of 8-10 psi of air in the fork, opting for between zero and five psi instead. And we replaced the original 10-weight oil with 550cc (20cc less than stock) of 5-weight. That gave our 400 (we left the 450 as delivered, just for comparison) better damping and less-progressive overall springing that was comparable to that of the best Japanese-built units, although not quite in the same league, in strict shock-absorption, as a Husqvarna fork. With the fork dialed-in, the Maico would soak up everything but sharp chops and ripples. Dropping down to 2.5-weight oil might have cured this compression-damping problem, but it also would have left the fork unacceptably devoid of re-

bound damping.

In comparison, the rear suspension gets the job done, but it's still nothing to write home about. The swingarm is the same as that of last year's Magnums, but the remote-reservoir Corte Cosso shocks are longer and their upper mounting brackets have been moved forward about an inch. The new installation angle and the increased shock travel give the rear wheel a stroke that's more than two inches longer (12 inches). The suspension is more compliant than that of the '79 bikes, so the rear wheel hooks up and follows the track's contours more efficiently than ever. The only types of bumps that constantly remind you that the shocks are not Ohlins-quality are the very same sharp-edged lips and holes that defeat the fork.

Unfortunately, while the softness of the rear suspension makes for a ride cushier than that of previous Maicos, it combines with the slightly low (for a bike with 12 inches of travel) and wide footpegs to let your feet hit the ground regularly. Sometimes your heels hit while landing hard, sometimes your feet get swept off the pegs altogether in the mud. And all of our testers complained that because the rear end would squat down so far while slamming into a berm, their *outside* feet would get dragged off the peg if the berm was steep.

The Italian-made Corte Cossos also start to fade after 25 or 30 minutes of hard moto, and then you can feel the rear end begin to bottom and bounce in places where it previously wouldn't. And judging by the condition of the shocks on our bikes after the test, their half-life won't be more than a month or two. Thankfully, there are lots of aftermarket shocks to fit Maicos.

You probably won't be in the market for many accessory engine goodies, though, for there's little to fault about the way either bike runs. Both pump out great gobs of horsepower and buckets of low-end torque, all without the faintest trace of peakiness. Despite lacking reed or rotary valves, either of these piston-port engines will grunt out of a slow turn at ultra-low rpm at a remarkably competitive rate, especially the 450. Both engines like to be short-shifted very early in the powerband, although the bigger Maico cuts competitive laps with a bit less shifting and a lot lower rpm than the 400.

Both engines have snappier throttle response this year due to lighter crankshaft flywheels. The cranks are not the usual full-circle type; instead considerable material has been cut away adjacent to the crankpin, thus giving each wheel a rounded-off "T" shape and reducing the overall flywheel effect. This hasn't se-

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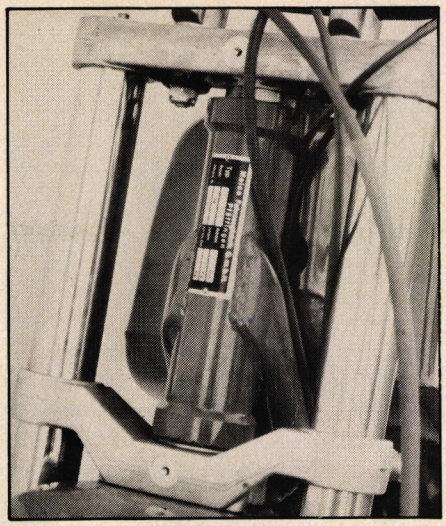
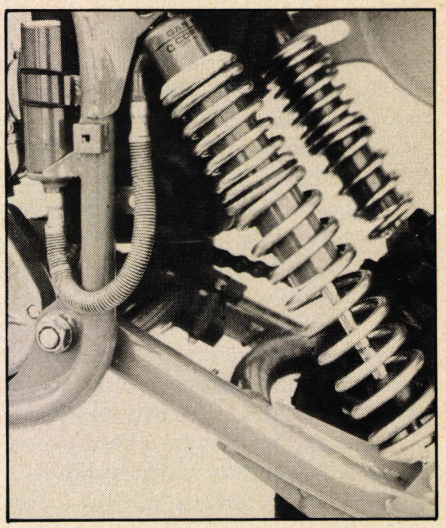


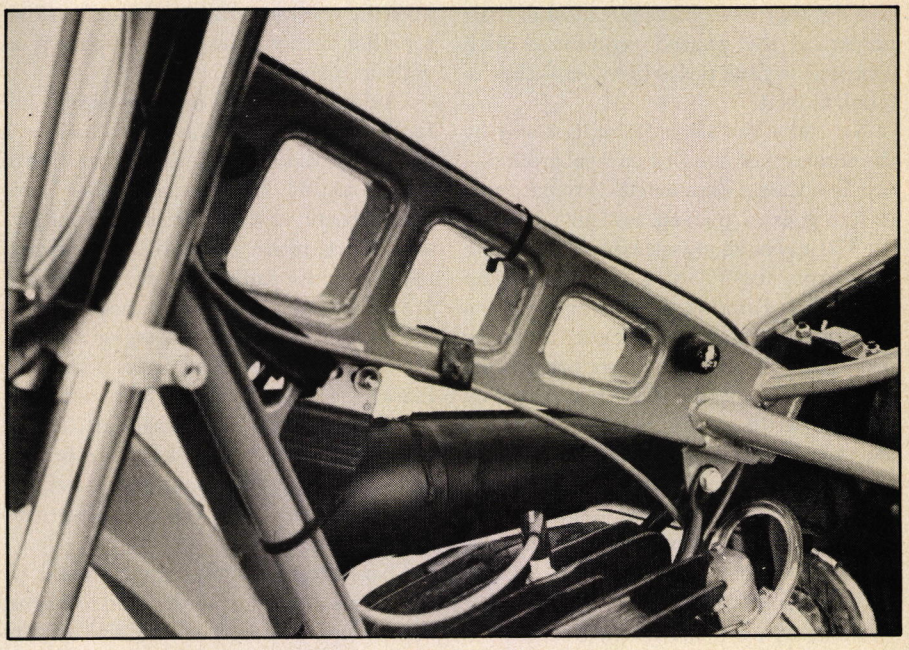
Gull-wing lower triple clamp

A little kink never hurt ride height.



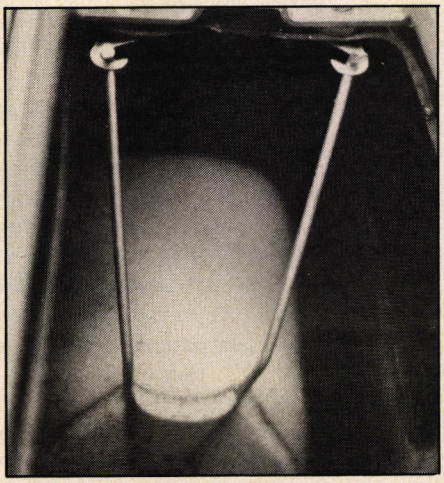
Laid-down for more travel

But held up by so-so Corte Cossos.



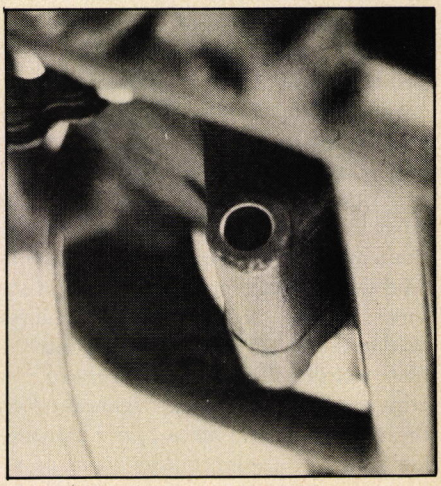
Pressed-steel backbone on Maico's new "Megaform" frame

It looks strong, but allowing a compact gas tank is its prime purpose.



Quick-detach spring-clip filter holder

Not an original idea, but a good one.



Unused bottom motor-mount lug

Proven unnecessary on the GP circuit.

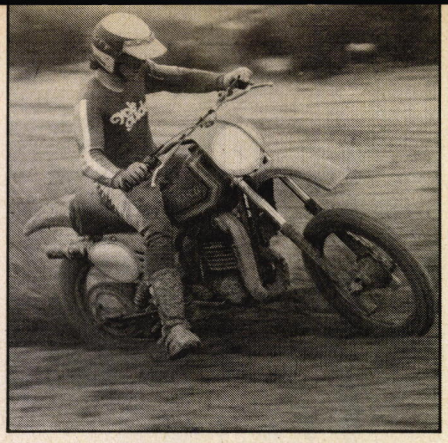
riously diminished the tractability or low-rpm pulling power of either engine, but it has helped them rev and accelerate more quickly—a bit, in fact, like the Japanese-built Open-class machines.

In conjunction with the new crank, the pistons are lighter in both engines to maintain the desired balance factor. And there's a minor re-angling of the transfer ports and a wider "eyebrow" atop the exhaust port, constituting the only tuning changes of any significance for 1980. Carburetion comes from a 36mm Bing, which is not all that big in relation to engine size. Its conservative venturi area is partly responsible for the crisp, bog-free throttle response, though it does slightly inhibit high revs.

Nevertheless, anyone coming to the track with the notion of out-motoring a Maico had better have a healthy engine and good traction on his side. Because the efficient way these bikes put most of their power on the ground—combined with competitive peak power numbers—they're tough to beat.

Naturally, the 450 is faster, but only by the slimmest of margins on level ground—say, less than a bike-length through three or four gears. Up steep, fast hills, though, the 450 makes its muscle known by pulling away from the 400 at a faster rate. And even when running dead-even with the 400, the 450 prefers a higher gear and fewer revs, meaning that it will get better traction when the track is slick or muddy. The 450 has better lugging power at low revs, the 400 has crisper response (but less power) in the midrange and also revs higher, but the 450 is faster. Yet the 450 is, surprisingly, less-demanding to ride than the 400 bike.

Despite having less flywheel mass, neither of our Maicos vibrated excessively. Several pieces did work loose, but only because we were lax in performing routine nut-and-bolt checks. Apparently, we've done too many tests of no-maintenance Japanese bikes for our own good. But that points up one of the differences between owning a Maico and owning a Japanese motocrosser: You *have* to maintain the Maico religiously or you'll soon end up with little more than a pile of parts. You must, for example, replace the primary chain often or it'll break. You have to contend with spoke nipples that seize on the threads and an airbox opening that allows mud from the rear tire to get slung onto the filter element. The cables are cheap, the grips are junk, the gas cap tightens up on the filler neck and some minor starting/low-rpm carburetion quirks could be alleviated by swapping the low-tech Bing for something better.



Moreover, any new Maico rider who has cut his teeth on a Japanese bike will find that instead of using two fingers to operate the front brake and three to work the clutch, the M1 calls for a whole fistful on the brake, and that the clutch feels more like The Hulk's hand exerciser. And if you intend to shift the M1 without the clutch (a wise move, considering the effort required), you must roll the throttle off altogether rather than just blipping it as with an RM or YZ.

Understanding all of these things beforehand, though, is the key to making a smooth transition from some other kind of bike to an M1. Like so many other European motorcycles, a Maico is not your personal slave, ready and willing to do everything and ask nothing in return. Nossir. It's a true partnership with these bikes or it's nothing at all. They'll forgive and correct many of your riding faults if you'll do likewise with their design and manufacturing shortcomings. Just as the Maico legend says, you have to like working on motorcycles to co-exist with one, and it helps if you're at least passable as a wrench-spinner.

These considerations, then, should be the ones that affect your decision to buy an Open-class Maico, not the size of the piston that pumps up and down inside. There just isn't that much difference in their performance. Every test rider on our staff, though, admitted that for one reason or another, the 450 would be his first choice for Maico magic.

So in the end, an Open-class Maico is as much an ongoing test of rider dedication as it is a motorcycle, for the demands it places on you plumb the depths of your seriousness about motocross racing. The test begins even before you buy a big-bore Maico because you have two to choose from, and it continues every time you go near the thing until you finally pass ownership on to someone else.

Chances are, then, that when anyone else sees you roosting around the track on a 400 or 450M1, there's no question as to the extent of your commitment to motocross.

You'll be riding it. •

Ride Review

• The M1-series Maicos give me headaches. They work so well and yet they annoy me intensely. Five years ago the present-day Maicos would have been state-of-the-art in motocross; but the Japanese have made the latest Maico efforts seem cobby. I shouldn't have to put up with cheap cables that demand to be replaced, nor should I accept an impossibly stiff clutch. I shouldn't have to trash-can the shocks or wrestle with a seized-on gas cap or live with the terrible finish on the tank.

But I will. I'll put up with these flaws with nothing more than a half-hearted protest, simply because the Maicos work so well. On any other bike, this sheer number of problems would stop me from considering a purchase, but Maico has assembled such a magical package that I can't resist them—even though they annoy me.

—Paul Dean

• I sure felt stupid-looking stuck in the middle of the M1 Maico's banana seat with a set of chest-high, DT-1-like handlebars in front of me. What kind of deformed Maico maniac could ride this heap of half-bright ideas, I asked myself.

A fast one, as it turns out. Grumble about the little-red-bicycle riding posture if you want, but a Maico is still the answer to the quest for Open-class trophies. The front tire takes a terrific bite on the ground that lets you turn inside Suzukis, yet the chassis runs hot, straight and normal on the straightaways.

I confess that I'm utterly astonished that the best Open-class bike for a pro is also the best bike for a novice. Unfortunately, while you don't have to be a pro to ride a Maico, you have to be a pro to wrench on one.

—Michael Jordan

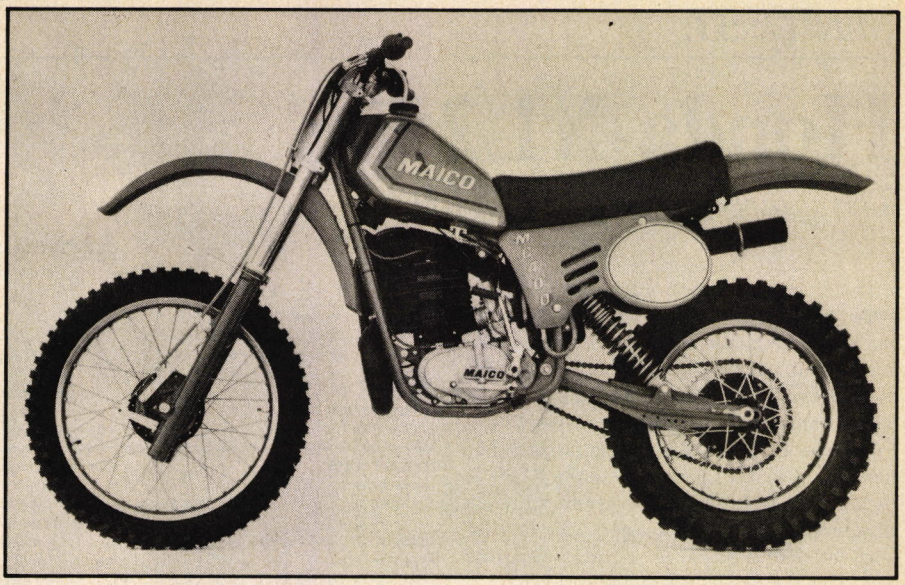
• I won't try to tell you that the Maico isn't a good motorcycle, because every racer worth his weight in chain-lube knows that it is. It's just that the Maico isn't *my* kind of motorcycle.

The handlebars are extremely high compared to those of other state-of-the-art motocross bikes, and that, coupled with the Megaform frame—which makes me feel like I'm sitting in the middle of a banana—tends to require a lot of upper-body strength. When I'm standing on the pegs, the handlebars also keep me from pitching the bike from side to side between my legs as I would a Suzuki or Yamaha.

For my money I'd pick an RM400 almost any day over the new Maico. I know that I would be stronger and more able to finish well at the end of a moto on the Suzuki than if I were riding the Big Banana.

—Dean Taylor

Maico 450M1 & 400M1



SPECIFICATIONS:

IMPORTER: Maico West
110 E. Santa Anita Avenue
Burbank, California 91502

CATEGORY: motocross

SUGGESTED RETAIL PRICE: 400M1: $2490
450M1: $2576

ENGINE
Type ..... two-stroke vertical single
Port arrangement ..... one piston-controlled intake, four transfers, one exhaust

Bore and stroke ..... 400M1: 77.0mm x 83.0mm
450M1: 82.0mm x 83.0mm

Displacement 400M1: 386.5cc
450M1: 438.3cc

Compression ratio (uncorrected) 12.0:1
Carburetion ..... one 36mm Bing slide/needle
Air filter ..... two-stage washable oiled foam element
Lubrication ..... pre-mixed fuel and oil
Starting system ..... primary kick
Ignition ..... internal-rotor magneto CDI
Charging system ..... none

DRIVETRAIN
Primary drive ..... double-row chain
Primary drive ratio 1.86:1
Clutch ..... wet, multi-plate
Final drive type ..... #520 chain (⅝-in. pitch, ¼-in. width)
Final drive ratio 13/56: 4.31:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.71	20.15	4.0
II	1.97	14.68	5.5
III	1.50	11.17	7.2
IV	1.20	8.94	9.0
V	1.00	7.43	10.8

SUSPENSION/WHEEL TRAVEL, IN.
Front ..... air-spring, 42mm stanchion tube dia./12.3 in. (312mm)
Rear ..... 3-way adj. spring preload/12.0 in. (305mm)

BRAKES
Front ..... drum, single-leading shoe
Rear ..... drum, single-leading shoe, rod-operated

TIRES
Front ..... 3.00x21 Metzeler Motocross Enduro

Rear ..... 4.50x18 Metzeler Motocross Enduro

DIMENSIONS AND CAPACITIES
Weight ..... 400M1: 233 lbs. (105.7kg)
450M1: 236 lbs. (107.0kg)

Weight distribution ..... 400M1: 46.8% front, 53.2% rear
450M1: 46.6% front, 53.4% rear

Wheelbase ..... 57.0 to 58.3 in. (144.8 to 148.0cm)
Seat height ..... 37.0 in. (940mm)
Handlebar width ..... 33.8 in. (859mm)
Footpeg height ..... 16.4 in. (417mm)
Ground clearance ..... 14.0 in. (356mm), at frame
Steering head angle ..... 28 degrees from vertical
Front wheel trail ..... 4.9 in. (125mm)
Frame ..... tubular chromoly, double front downtubes
Fuel tank ..... plastic, 2.5 gal. (9.6/), no reserve
Instrumentation ..... none

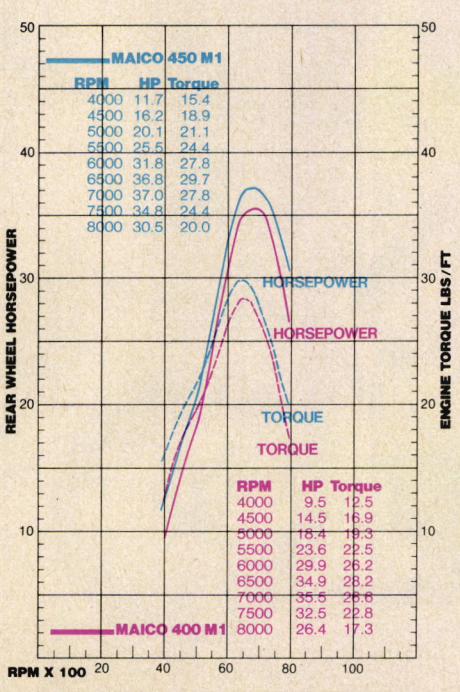
PERFORMANCE
Top speed (calculated) ..... 81 mph (130 kph)

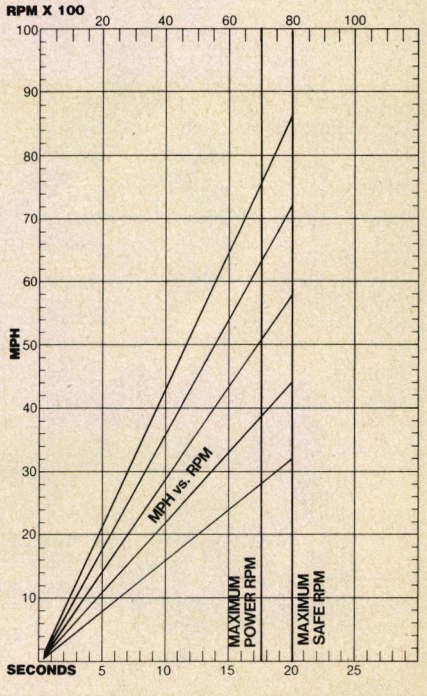
All weights and measurements are taken with machine unladen and fuel tank empty.

COMPARATIVE TEST DATA:

Make & Model	Horsepower	Wheel Travel Front/Rear, in.	Weight (fuel tank empty), lb.	Weight bias Front/Rear percent	Transmission, number of speeds
Maico 450M1	37.0	12.3/12.0	236	46.6/53.4	5
Maico 400M1	35.5	12.3/12.0	233	46.8/53.2	5
Suzuki RM400N	28.1	11.2/11.8	229	46.3/53.7	5
Yamaha YZ465G	NA	11.8/12.2	225	NA	5
Montesa Capra 414VE	28.5	10.9/10.7	236	45.3/54.7	4
Husqvarna 390CR	29.3	9.6/10.0	234	45.3/54.7	6

PERFORMANCE:





MINITEST:

Honda XL250S

The quarter-liter freedom fighter.

• There's a certain sense of freedom you enjoy while riding a good dual-purpose bike. Not only can you roam the thoroughfares of town in confidence, but when you discover an inviting fire-road or stretch of open land, you can point the bike toward it with no second thoughts.

Because it not only allows that freedom but contributes to it, I especially like the XL250S. Its 249cc four-stroke engine seems to relish chugging through stop-and-go traffic or clipping the double-nickel as much as exploring new trails through woods or desert.

That all-around-guy image doesn't mean that you should expect the world from this 271-pound trailer-beater, though, because it simply won't fly formation on the freeway like a 1000cc multi or make near-perfect scores in an enduro. Instead, the XL250S makes its mark as a daily transportation bike for work and by cheating the monthly gas bill on short errands. Then, with little more than lowering the tire pressure by a few pounds and stripping off the mirrors, you've got a trail mount for the weekends.

Many of the reasons for the XL's competent dual existence can be traced to its engine. Thanks to dual counterbalancers, the engine runs smoothly from idle until it runs out of steam. Plenty of torque is tucked inside the combustion chambers, too, so you don't have to shift constantly to make things happen. The result is that you can spend more of your time riding rather than worrying about clutch/throttle coordination.

Much of that worry would be useless anyway. The XL's clutch seems to have a mind of its own. You'll notice it right off when you engage it in first gear: The telltale clutch chatter leads to a sudden grab that would make a linebacker proud. Needless to say, the resultant lurch forward will do little to endear the bike to you. Fortunately, the rest of the XL's operation will. You'll forget about the clutch chatter once you're underway, because shifts while moving show little or no rebellion from the clutch.

You'll also find no revolt in the suspension, which Honda made more agreeable this year by softening the spring and damping rates. Consequently, the fork doesn't kick back when it encounters a small rock or bump as was the case on earlier XLs. If you don't get too aggressive through the whoop-de-dos, the Honda will stay in a straight line and obedient to your whims.

The softer suspension makes around-town riding more pleasant as well. It absorbs bumps better than most street bikes can, and when the riding surface gets rough, you can treat the XL just like you would if you were off-road. When you hit a dip or bump, just unweight yourself as if you were trail riding and let the seven inches of suspension do the work.

In addition to modifying the suspension for the 1980 model, Honda saw fit to include passenger footpegs and a seat strap. The passenger pieces are more or less academic, though, as the XL's short seat will ration two-up riding time. As well as bolting a strap to the seat, Honda also reshaped it so that your legs won't rub against it in stand-up riding.

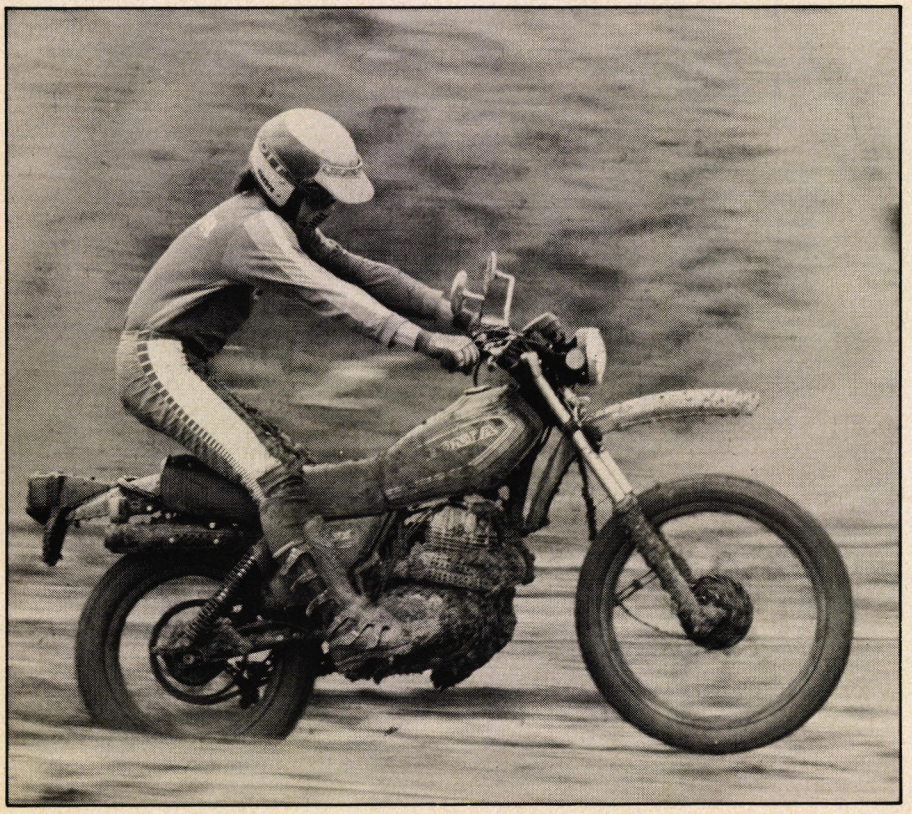
Aside from the suspension changes and a seat revamp, the only other differences between this year's XL and last year's model lie in the decal striping on the gas tank. The tires, for example, are the same Claw-Action Bridgestones that did much to inspire both on-and off-road confidence on the '79 version. That philosophy of little change carries over to the pricetag, which you'll note is the same as last year's. All of which adds a little financial freedom to the enjoyment of this quarter-liter freedom machine.

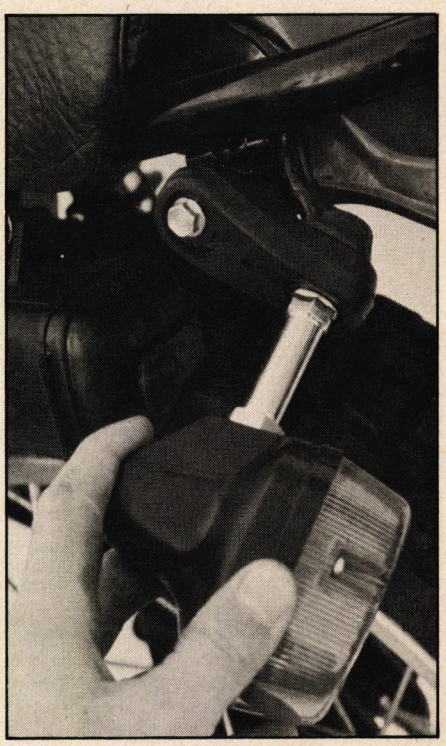
—Dain Gingerelli

Honda XL250S

Importer: American Honda Motor Co.
100 W. Alondra Boulevard
Gardena, California 90247

Category:	dual-purpose
Suggested retail price:	$1448
Engine type	four-stroke vertical single
Valve arrangement	single overhead camshaft, four valves
Bore and stroke	74.0mm x 57.8mm
Displacement	248.5cc
Carburetion	one 26mm Keihin slide/needle with accelerator pump
Gearbox	5-speed
Final drive ratio	3.79:1
Front fork/wheel travel	35mm stanchion tube diameter/7.9 in. (201mm)
Rear shocks/wheel travel	5-way adjustable preload/7.9 in. (201mm)
Wheelbase	55.2 to 56.5 in. (141.2 to 143.5cm)
Seat height	33.3 in. (846mm)
Fuel consumption	31.2 to 61.5 mpg (13.3 to 26.2 km/l)





Rubber-mounted signals for the street

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Tsubaki engineering has come up with a new 520 chain that is designed specifically for DIRT BIKES. When the going gets tough . . . the new Pro Series type chain just gets going . . . sand, mud, grit, water won't stop it!

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- SPECIAL PRE LUBE INCREASES LIFE
- NEW SHOULDERED AND PROJECTED BUSHING DESIGN TO VIRTUALLY ELIMINATE KINKING!
- SOLID ROLLERS
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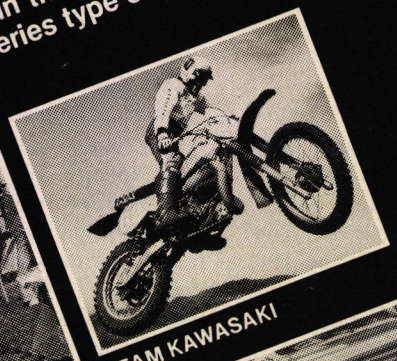
- QUAD STAKED RIVETING ON THE PIN

TEAM LOP



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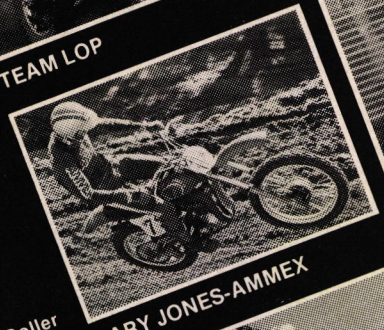
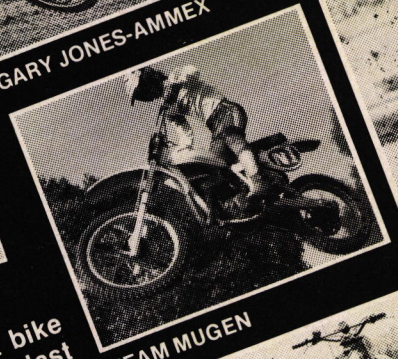


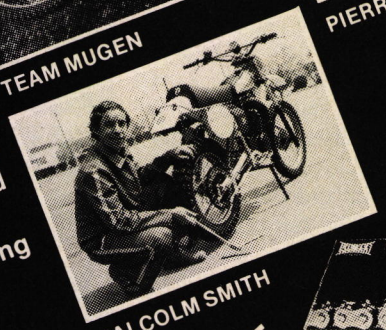
GARY JONES-AMMEX

TEAM-MOTO-X-FOX

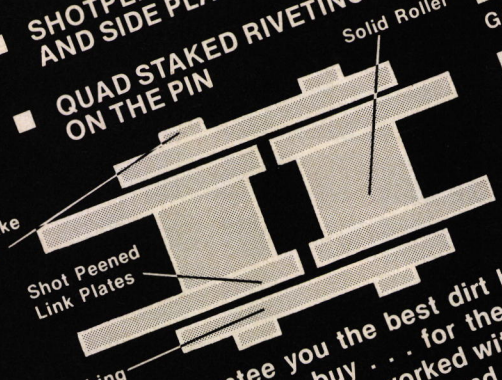


TEAM MUGEN

PIERRE KARSMAKERS



MALCOLM SMITH



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BREAKING WIND:

Wind-Tunnel Testing

Proof of how fairings can't and don't work . . . and how they do.

BY DAVID DEWHURST

• A motorcycle is not unlike a jet fighter with a barn door nailed to its nose: Although both have magnificent speed potential, their aerodynamic shapes severely inhibit their performance. Of course, a fighter never has to push a barn door through the air, but a motorcycle, because of its design, effectively has to do just that. With its engine hitting the wind at right angles and its operator sitting bolt-upright in the middle like a human sail, a motorcycle with rider must be one of man's most aerodynamically inefficient creations.

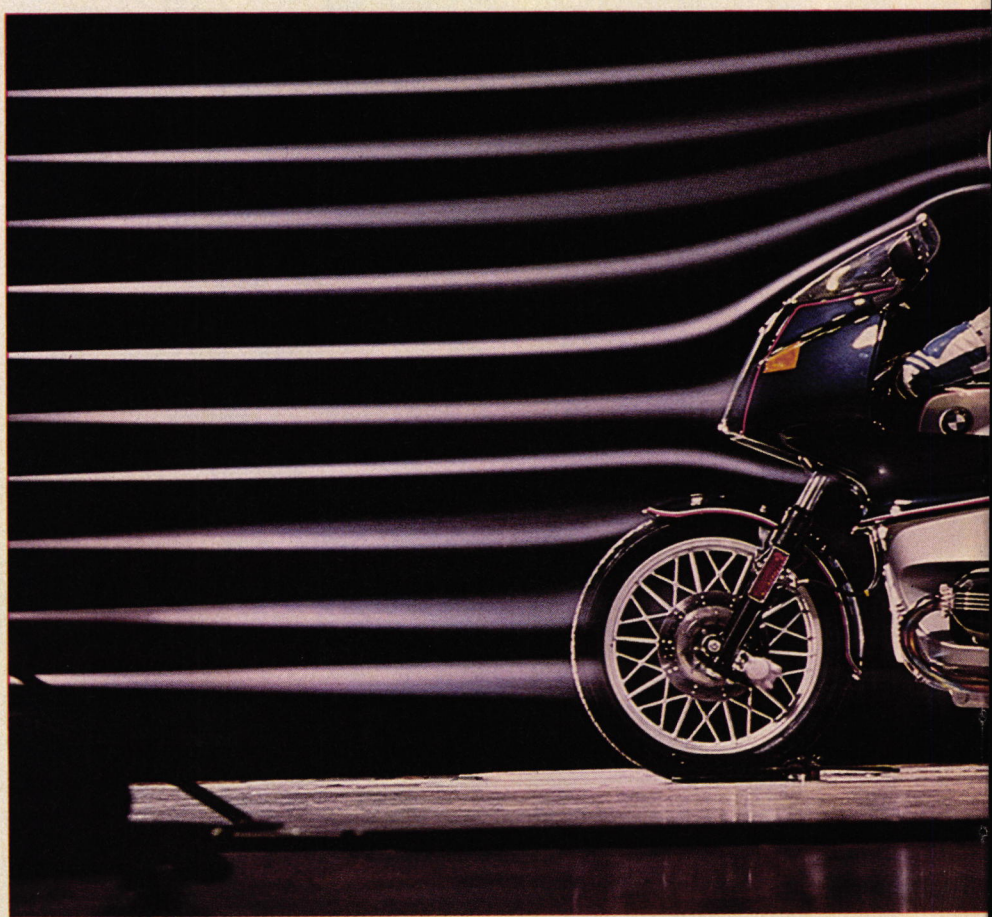
Bolting on a fairing would seem a logical way of improving a motorcycle's barndoor factor simply by tidying up its aerodynamics. And judging by the current high volume of fairing sales, a lot of riders must agree. But if there's one thing you can say about aerodynamics, it's that you can't judge how much of it something possesses just by looking at it. Yet that's the only method by which a rider can select a fairing—by looking at it. And what he expects from that fairing is everything from simply changing the appearance of his motorcycle or keeping the air off of his chest to improved gas mileage or greater top speed.

As you can see, three of those four expected benefits are dependent on aerodynamics. But a prospective buyer has no means of determining beforehand which fairings will live up to his expectations. The only way, in fact, to establish the true aerodynamic properties of a fairing is out of the question for an individual. That method is to put the fairing in a wind tunnel, which is, essentially, a colossally huge fan that is housed in an even more colossally huge room. The fan can blow a stream of air over an object (car, plane, motorcycle with and without fairing, etc.) at speeds ranging from a gentle breeze to something in excess of 15,000 mph. And with the aid of assorted electronic and visual monitoring devices, a wind tunnel can give valuable information about the aerodynamic efficiency of any solid object.

Knowing that, it's only logical to expect that sooner or later, someone would rent time in a wind tunnel (they're few in number and usually inaccessible to the public), round up a selection of faired and unfaired motorcycles and find out for themselves just how aerodynamic certain types of fairings are—or aren't. Which is just what the people at *Motorrad*, a popular German motorcycle magazine, did at Volkswagen's sophisticated wind tunnel at Wolfsburg, Germany. Their findings were enlightening, to say the least, not to mention blowing away a few myths about the supposed benefits of a fairing. Granted, they mostly used BMWs in their tests (it *is* a German magazine, after all), and most of the fairings they examined are not available Over Here. Nonetheless, the information they gathered not only is fascinating, it may be of great use to anyone the next time they set out to buy a fairing.

Motorrad's testers used an unfaired stock BMW as a baseline and then compared it to various other BeeEms equipped with stock and European aftermarket fairings. They also threw in a Ducati 900SS Desmo, a Kawasaki Z1-R, a Guzzi 1000SP and a Yamaha XS Eleven fitted with a Euro-made full touring fairing. And what they were trying to find, ultimately, was the amount of drag presented by each rider/motorcycle combination. Drag, of course, is the amount of resistance an object offers to being moved through a medium (air, in this case), and it is dependent on the speed of the object, the frontal area of the object and its coefficient of drag (Cd).

Frontal area is the total amount of area on the motorcycle which is exposed directly to the oncoming air. And finding the frontal area of the test bikes involved backing each motorcycle up against and perpendicular to a white-painted wall, then directing a powerful beam of light at the bike from directly in front of it. That cast a shadow on the wall which had exactly the same shape and area as the motorcycle's frontal area. So measuring the shadow (far easier than measuring the con-



Disproving fairing myths in the Volkswagen wind tunnel

Smoke streams follow airflow, showing long- and shortcomings of the RS fairing.

voluted shapes at the front of the bike) gave the bike's frontal area.

A compilation of the frontal-area figures for all 11 of the bikes measured was revealing, for it proved that large fairings do not necessarily have to add to the frontal area. The unfaired baseline BMW R100, for example, measured exactly 8.5 square feet in silhouette, yet the R100RS full fairing added only 0.2 square feet to that figure.

It became increasingly obvious during the testing that riding position and engine configuration play a much more important role in limiting frontal area than does a fairing. Confirmation of this came when comparing the Ducati 900SS and the Kawasaki Z1-R. While both have similar quarter-fairings, the bikes vary drastically in frontal area. The Ducati's narrow, in-line vee-twin motor and low handlebar presented the smallest frontal area of the entire test group with 7.6 square feet. The Kawasaki, with its wide, four-cylinder engine and more upright riding position, had the second-*largest* area at 8.8 square feet.

This comparison clearly showed that if a cheap increase in aerodynamic efficiency is your goal, lowering the handlebar (and moving the footpegs rearward, too) should effect a noticeable improvement. You may, however, be after more efficiency without resorting to a back-breaking racing crouch. A fairing is the only answer here, but not just *any* fairing, for the way it cuts through the air is all-important.

MOTORRAD

Ideally, fairings should be shaped like an airplane wing, or at least an airplane fuselage. That shape, with a gently rounded nose that tapers to a point at the rear, is the most efficient means of parting the air without disturbance. And at the other end of the scale is our hypothetical barn door, the epitome of inefficiency when it comes to aerodynamics. In fact, that same comparison was what aerodynamicists once used to calculate the coefficient of drag. The Cd was a measurement of how aerodynamically efficient an object was compared to a flat plate having the same frontal area. With more sensitive electronic equipment, present-day engineers can calculate the Cd from figures obtained in the wind-tunnel. The results are still the same, just more accurate, as they negate the use of clumsy comparisons.

It didn't take long for the testers to confirm that with or without fairings, motorcycles have more in common with flat plates than they do with airplane wings. The basic layout of an unfaired motorcycle precludes any aspirations it may have of cutting the air cleanly. And because fairings can't be made like airplanes, even they do not have continuous, smooth surfaces that extend from the front to the rear of the machine. So as soon as the airflow reaches the upper edge of the windshield or the outer edges of the fairing itself, the air no longer has a surface to follow and so is thrown into turmoil. The straight, unbroken lines of airflow suddenly churn up into whirpools of chaotic air behind the fairing. Then the already-disturbed air hits the rider, who again throws it into swirling whirlpools called eddy currents. These eddies spin madly round and round and actually cause air to flow *forward* as it swirls behind the rider. Anyone who has ridden with a fairing can identify with this effect, which manifests itself as a buffeting around the rider's back and helmet. And not only is that buffeting uncomfortable, it is aerodynamically inefficient, for turbulent air induces drag.

A quick comparison of Cd numbers that the wind tunnel provided draws a clear picture. The unfaired BMW R100, with a rider aboard, had a Cd of 0.627, and the R100RS fairing managed to lower that figure to 0.571. Certainly that's a significant improvement, but the RS still is grossly inefficient when you consider that an 18-wheeler has a Cd of around 0.65, and that even the much-maligned American sedan

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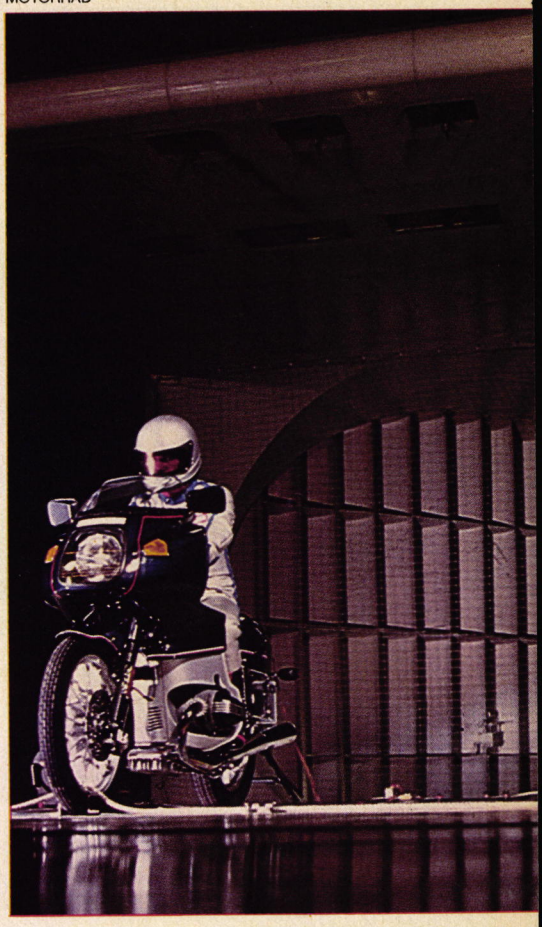

can average a Cd of about 0.46. What's more, Citröen, the French manufacturer of automobiles, has been able to reduce the Cd of its CX range of cars to as low as 0.36.

Some of the other fairings streamlined the BMW a little better than did the RS fairing, but not by much. The most efficient of the group was the German-made Habermann full racing fairing, which dropped the BMW's Cd to 0.564—not bad, but still far worse than most cars despite its racing heritage. At the other end of the efficiency scale was the Heinrich handlebar-mounted windscreen. Its large, flat front offered ample rider protection, even with an upright seating position, but it also managed to increase the Cd of the BMW to a record high 0.634. Almost as much rider protection was afforded by the far-more-efficient BMW R100S café fairing and its Cd of 0.589. But it demands a more crouched riding position than touring riders are willing to endure.

The wind-tunnel testing also quantified another aerodynamic phenomenon: lift. As the speed of the motorcycle increases, the flow of air over and under the machine combine to lift it slightly, whether it is faired or unfaired. A fairing will, however, increase the amount of lift that is induced. That's why some fairings (including the R100RS fairing, which was developed at

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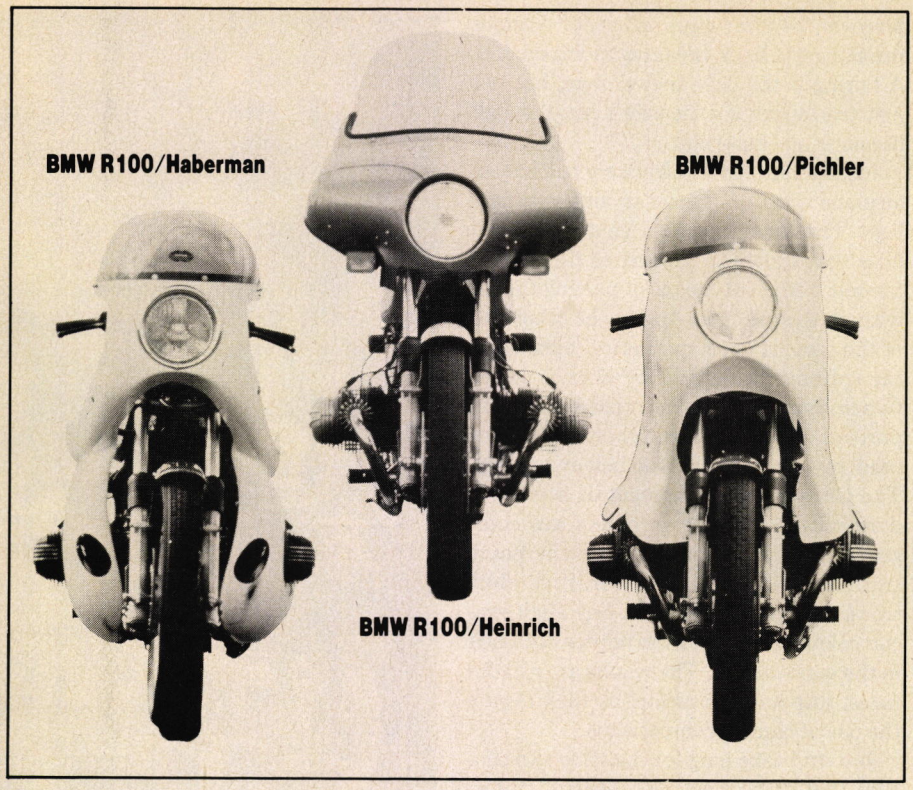

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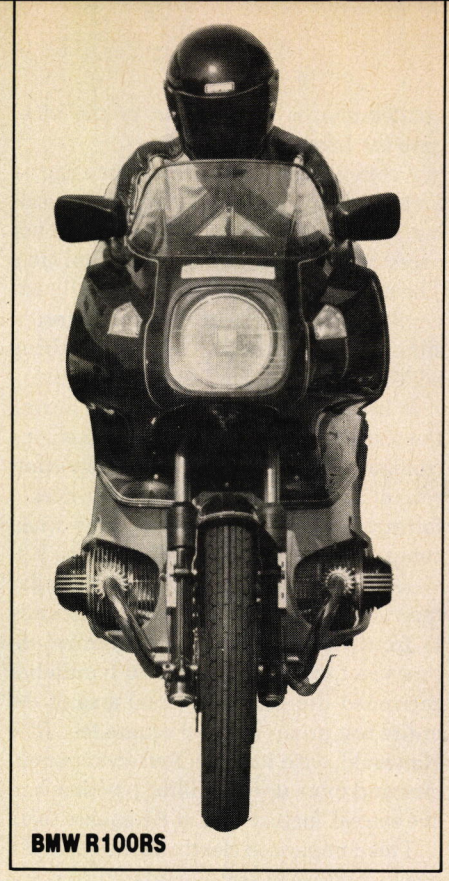

BMW R100RS

the Wolfsburg tunnel) have built-on airfoils designed to negate some of the added lift caused by the fairing. Not only that, fairings also help induce more lift on the rear wheel than the front.

Once the wind-tunnel evaluations were complete, the bikes were put on the VW test track at the same site for a program of top-speed and fuel-mileage comparisons. After all, a fairing's objective is to enhance certain aspects of a motorcycle while it's moving, not to festoon a bike that's parked in a wind tunnel. But for the most part, that track testing simply gave real-world credence to the numbers that had been generated in the wind tunnel. There were no astonishing increases in top speed nor significant improvements in fuel mileage.

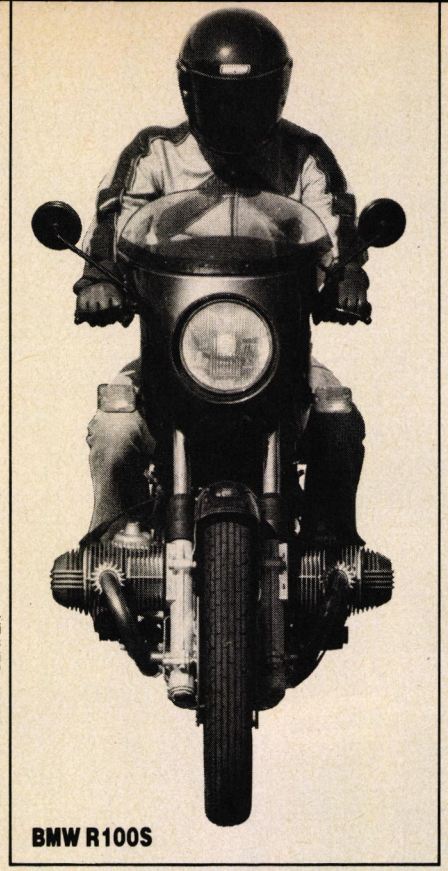
Again, using the R100 as a baseline, that unfaired model averaged 45.69 mpg while running at a steady 62 mph. With the R100S handlebar fairing, the mileage improved by just over two mpg at the same speed. As the speed was increased to 87 mph, the faired machine showed a four-mpg advantage, but at twice the legal speed limit its consumption was only three mpg better than the unfaired R100's.

Certain fairings can, however, work better at some speeds than at others. The flat Heinrich screen. for instance, delivered better mileage at 62 mph despite its higher Cd, but the fuel consumption worsened as the speed increased. The large R100RS fairing, on the other hand, gave a consistent boost in mileage. At 62 mph it yielded 47.76 mpg, an improvement of about two mpg, and it maintained that level of improvement right up through the speed range. Remember, though, that these figures were calculated at steady speeds, and that the need to accelerate with the additional weight of a fairing aboard will consume more fuel than when unfaired.

Riders who care more about high performance than high mileage may be surprised to learn that any improvements in top speed offered by this group of fairings were, for the most part, as small as the fuel-mileage boosts. The unfaired BMW flashed through the lights at 112 mph, and the R100S café fairing added just two mph. The greatest improvement came with the sporty Pichler fairing, which managed a respectable five-mph increase to 117 mph. The rest of the BMW sample-group fairings either slowed the bike down or increased its speed by only one or two mph.

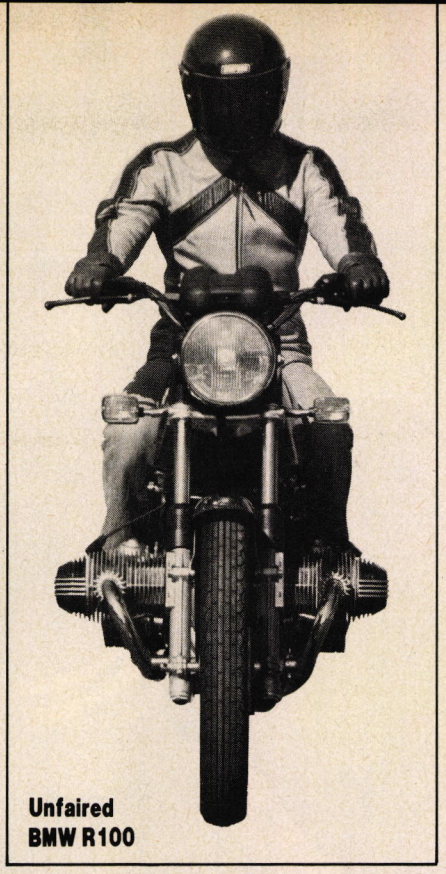
What all of this means, then, is that fairings do not, offer performance gains of sig-

	Cd. Value	Frontal Area (sq. ft.)	Consumption at 62 mph	Consumption at 87 mph
BMW R100 unfaired	0.627	8.5	45.69 mpg	36.48
BMW R100S stock fairing	0.589	8.5	47.76	40.41
BMW Habermann	0.564	8.4	44.54	36.48
BMW Heinrich	0.634	8.6	48.64	34.79
BMW Pichler	0.566	8.2	44.52	36.73
BMW R100RS stock fairing	0.571	8.7	49.56	39.20
Ducati, 900SS Desmo stock fairing	0.559	7.6	54.72	49.56
Kawasaki Z1-R stock fairing	0.564	8.8	54.72	32.23
Moto Guzzi 1000SP stock fairing	0.608	8.0	51.10	36.48
Yamaha XS1100 unfaired	0.634	8.4	42.03	32.23
Yamaha XS1100 stock fairing	0.576	8.9	40.72	32.23

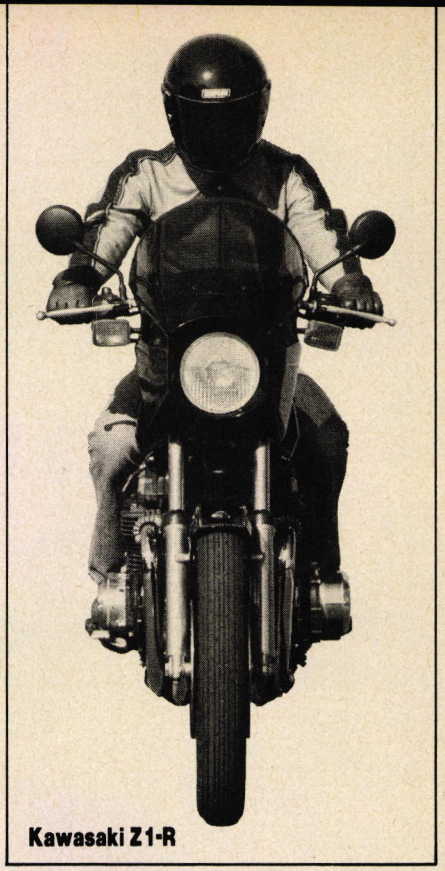


BMW R100S

BMWS COURTESY OF IRV SEAVER



Unfaired
BMW R100



Kawasaki Z1-R

nificant magnitude, indeed, if at all. And even if you select a fairing that affords the most dramatic improvements, it still will be virtually impossible to recoup your investment via fuel savings. A $250 fairing, for example, that would boost your mileage from 45 to 50 mpg (which it more than likely wouldn't) could save you only $26 in the purchase of $1.20-a-gallon gasoline for every 10,000 miles you rode. Meaning that if you rode 10,000 miles a year, it would take about 10 years (with no increases in gas prices, yet) to break even.

Buying a fairing for more pure performance doesn't wash, either, not when all you get is a few more mph on the top end. When was the last time you went 115 mph, anyway? Better yet, where? And would being able to go 117 have made a difference?

Understand, of course, that these tests were conducted using mostly fairings that will never see these shores, but that there is a message in all of this anyway. And that message is not that you shouldn't buy a fairing, but that when you do buy one, make sure you do so for the right reasons. Properly interpreted, the Wolfsburg data actually can simplify your selection of The Right Fairing. Without the need to worry about the aerodynamic part of the equation other than deciding on a basic style (frame-mount touring, bar-mount café, etc.) matched to your riding needs, the choice is almost straightforward. You can pick one because it offers the look that you want or makes an ideal platform for the additional equipment you intend to install (radio, tape deck, gauges)—or simply because you're tired of that 60-mph blast of cold, wet and cruel air continuously hammering at your head and body.

Just remember that large doesn't necessarily mean inefficient, because as the R100RS fairing showed, good protection and a low Cd *can* go hand in hand. Neither should you assume that a smaller, handlebar-mounted windshield will cut the air any more efficiently. As the Heinrich screen showed, more frontal area with a higher Cd and less rider protection sometimes is what you get from a small shield.

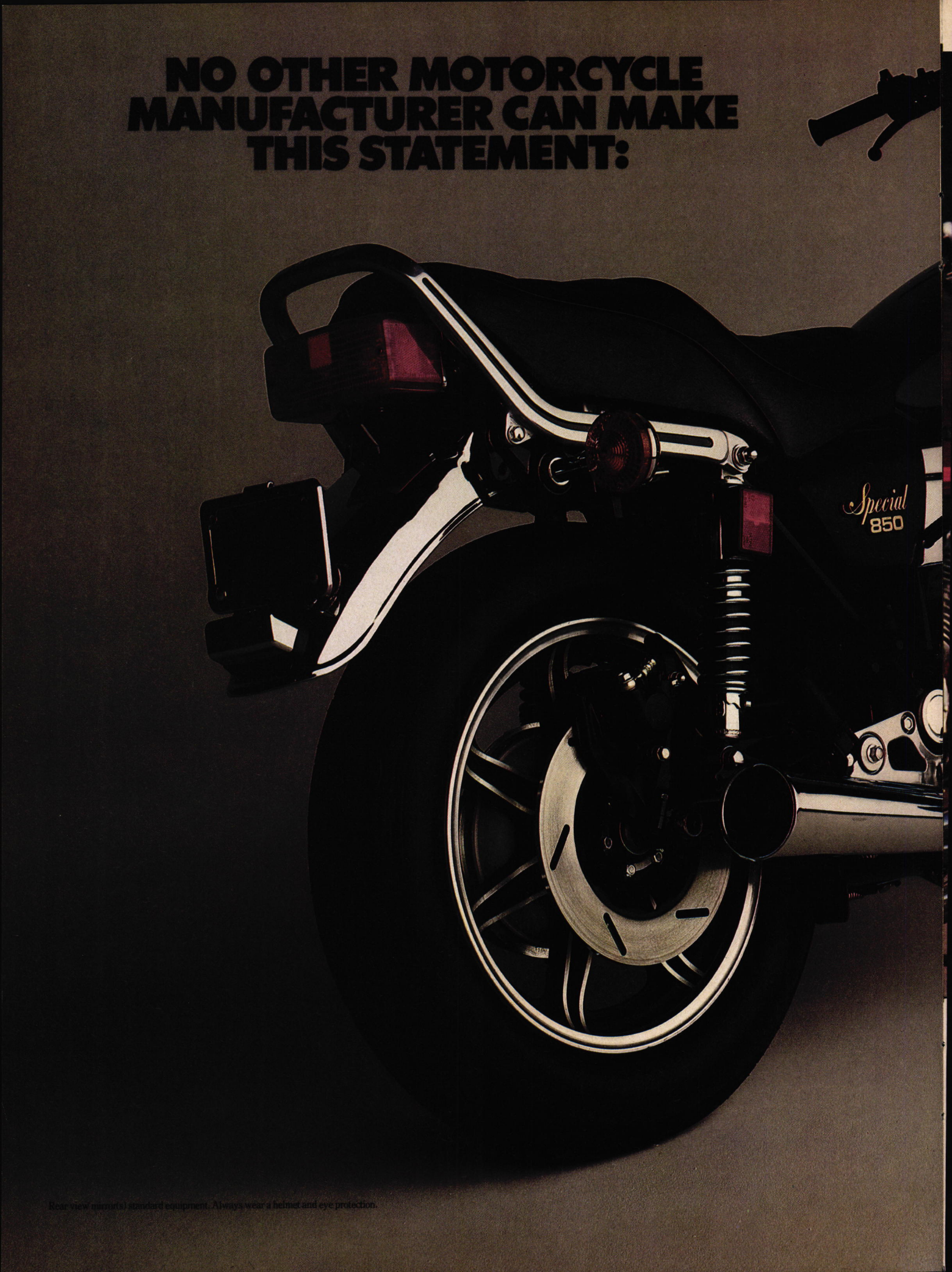
When all the agony of choosing a fairing is over and done, you'll still be pushing a barn door down the road. But if you make your decision wisely, at least it might be a slightly *streamlined* barn door. And you'll take great comfort, both physically and mentally, in knowing that the fairing, and not you, is punching the hole in the wind. •

Consumption at 110 rpm	Maximum Speed M.P.H.
26.40	112.4
29.18	114.8
25.50	116.1
24.89	111.1
26.00	117.9
28.46	117.3
36.23	122.0
20.28	124.2
32.03	111.2
22.74	133.6
23.55	136.0

	Air Speed in MPH	Lift on Front Wheel Lbs/Force	Lift on Rear Wheel Lbs/Force
BMW R100 Unfaired	88	46.5	30.5
	96	55.6	38.3
	110	66.0	47.2
BMW R100S Stock Fairing	88	36.8	25.8
	96	44.6	32.1
	110	53.9	38.4
BMW R100 Heinrich	88	29.0	26.8
	96	34.1	34.4
	110	43.3	41.7
BMW R100RS Stock Fairing	88	36.9	22.1
	96	43.5	28.8
	110	54.0	35.2

MOTORRAD

NO OTHER MOTORCYCLE MANUFACTURER CAN MAKE THIS STATEMENT:



Rear view mirror(s) standard equipment. Always wear a helmet and eye protection.

The 1980 Yamaha XS850 Special is a striking example of just how far Specials have come in three years.

And just how far the competition has to go to catch up.

The clean, fluid downlines formed by the classic teardrop tank and side covers reflect the years we've spent refining our original design.

This year, by cleverly restructuring the frame geometry and seat mounting system, we not only integrated the seat with the frame but lowered the seat height significantly. So at the stoplights, you get feet-on-the-ground stability, and on the road, a feeling of sitting "in" the seat instead of "on" it.

And that new cast alloy grab rail is not only an attractive accent, but allows the taillight to become an integral part of the tail configuration—with twin bulb lighting for insurance.

But perhaps the biggest news about this machine is the ferocious 826cc powerplant. It's a triple. Yet it puts out all the power of a four. And its narrow profile allows for remarkably nimble and responsive handling.

An ingeniously engineered direct-coupling shaft drive translates the enormous power into quiet silky smoothness. And an oil cooler means you'll roll for thousands of hassle-free miles.

Additional goodies include one-piece cast alloy wheels, tubeless tires front and rear, new drilled triple disc brakes, and a couple of delectable colors. Black Gold and Carmine Red.

The new XS850 Special. A statement of the art by the original artist.

YAMAHA

When you know how they're built.

MINITEST:

Suzuki RM250T and RM400T

Two of a kind that are one of a kind.

• Want to hear a definition of the word "confident?" Try the word "Suzuki." Because for 1980, that company has committed what seems like an unnatural act by building RM250 and RM400 motocrossers that are, for all intents and purposes, identical to their 1979 counterparts. And to do such a thing in motocross, a sport in which even a state-of-the-art machine can become obsolete before needing its first chain adjustment, means that Suzuki must have complete and utter confidence in those two biggest of RMs, that someone thinks those bikes are good enough to carry on unchanged for one more racing season.

Okay, so the T-model 250 and 400 both have a new rear fender, and sure, there are 4.5 more degrees of advance in the 250's ignition curve and a less-restrictive baffle in the 400's expansion chamber. Too, their identical chassis have a few refinements like four-way-adjustable (instead of two-way) shock rebound damping and refillable shock reservoirs. Each bike also grew a new caliper-like chain guide, and both have had their overall spring rates fine-tuned for 1980—the fork with a 10mm-higher oil level, a 3mm-greater preload and a 1.4-pound increase in static air pressure; the shocks with dual-rate springs in place of last year's triple-rate coils. But aside from these few differences, these two RMs are carbon copies of last year's bikes—horsepower, wheel travel and all.

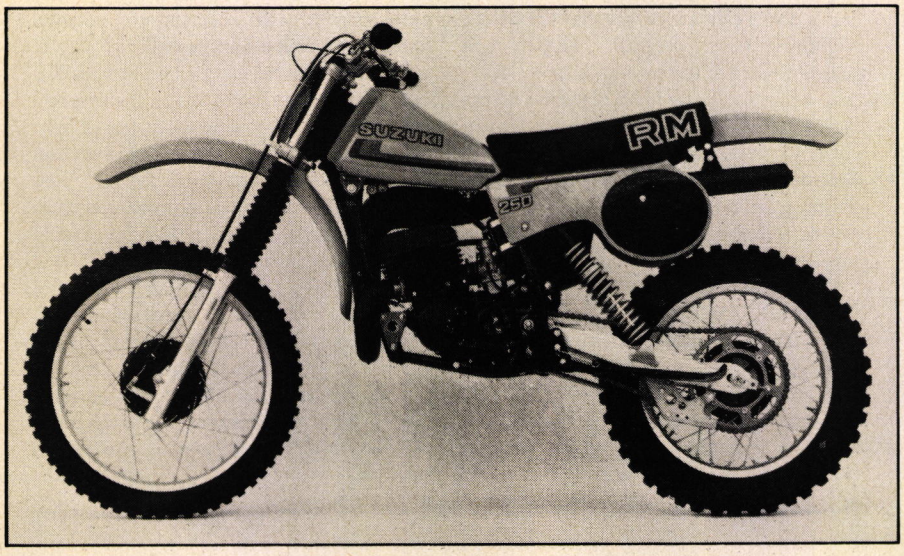
GEORGE WEGNER

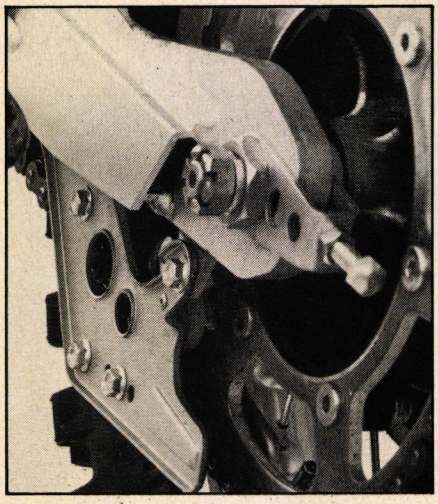
That would be no big deal if we were talking about two street bikes or a pair of dual-purpose playtoys. But we're not. We're talking real motocross stuff here. We're talking about a fiercely competitive segment of the market in which new-model one-upsmanship is a survival tactic, where no one brand ever is a clear-cut champion in any class for long, if at all. Sure, both of these RMs were highly regarded in their respective classes last year, but neither was The Best. So with all of the advances that Suzuki's competitors have made this year in both classes (all-new YZ Yamahas, Uni-Trak Kawasakis, new Maico M1s and so on), it's hard to fathom what the motocross design team at Hamamatsu had in mind.

You won't find out by riding the bikes, either, at least not if you've ever ridden a '79 RM. Because the T-models, naturally, feel and perform exactly the same as they did before. The saving grace of it all, though, is that changed or not, both still are pretty slick motocrossers. Their suspensions are second in quality of action only to a Husqvarna's, and Suzuki seems to be closing that already small gap with each passing model year. Plus, the RMs both have adjustable shock damping, a feature that Husky can't match. And while neither Suzuki is *the* fastest in its class, both offer exceptional tractability without sacrificing competitive straightaway acceleration.

This power is hard to appreciate at first on the 250 because the bike feels, well, *slow*. It's not peaky nor does it stop revving just past its power peak as some Suzukis are prone to do. Instead, the T's case-reed two-stroke behaves like something you'd find powering a European motocrosser, not one from Japan, the home of the light flywheel. The long-stroker pulls cleanly from a remarkably low rpm, meters out its predictable power as though it were some sort of electric motor and maintains traction better than some enduro engines can. And as a dragrace with several other 250s demonstrated, the 250T might feel slow but it certainly is not. Yes, there are some 250s that could outrun the RM250T on a fast, reasonably smooth track; but on a tight, muddy course, the Suzuki is your friend.

No one will ever call the RM400T slow, regardless of the terrain or the competition, for it has one of the most flexible, yet powerful, engines in the Open class. The 400 revs and accelerates in a way that's reminiscent of some light-flywheeled Open machines; but its engine, like the 250's, is an undersquare torquer that will slog down almost to trials rpm in top gear with-





Chain anti-derailleur uses thrust pads

Let your sprocket be your guide.

Suzuki RM250T & RM400T

Importer: U.S. Suzuki Motor Co.
13767 Freeway Drive
Santa Fe Springs, California 90670

Category	motocross
Suggested retail price	RM250T: $1819 RM400T: $1999
Engine type	two-stroke vertical single
Port arrangement	one piston-controlled intake, one reed-valve-controlled intake, six transfers, one exhaust
Bore and stroke	RM250T: 67.0mm x 70.0mm RM400T: 80.0mm x 83.0mm
Displacement	RM250T: 246.8cc RM400T: 417.2cc
Carburetion	one 36mm Mikuni slide/needle
Gearbox	5-speed
Final drive ratio	3.50:1
Front fork/wheel travel	air-spring, 38mm stanchion tube diameter/11.2 in. (285mm)
Rear shocks/wheel travel	3-way adj. spring preload, 4-way adj. rebound damping/11.8 in. (300mm)
Wheelbase	56.3 to 57.5 in. (143 to 146cm)
Seat height	38.0 in. (965mm)
Weight	RM250T: 218 lbs. (98.9kg) RM400T: 229 lbs. (104.0kg)

out bogging or loading up. And also like the 250, the 400T's even, predictable power delivery helps the 5.10x18 rear knobby preserve whatever traction is available on days when that precious commodity is in short supply.

If quirk-free is the watchword of the RM engine performance, quirk-*filled* must be the calling card of the chassis. Not that these motorcycles are evil-handling or anything that ominous; it's just that like last year's RM250/400, this De Coster-signature chassis turns corners only as well as you make it, and no more. If you ride aggressively and are sure of your actions, the RM will track through a corner, either up on the berm or down on the very inside, as though Roger himself were at the controls. If you're hesitant, though, or too abrupt while trying to change lines in a turn, the RM is fully capable of dumping you on your big red "S" quicker than you can say "Kent Howerton."

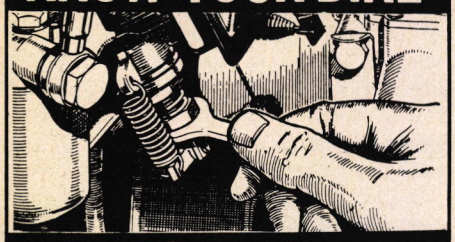
Blame it on the radical geometry changes that occur when the softly sprung RM makes transitions from acceleration to braking or vice-versa. Combined with the bike's front-wheel-biased steering mannerisms, suddenly snapping the throttle either on or off while turning alters the front wheel trail so dramatically that the bike sometimes overreacts or responds in an unpredictable fashion. The RM400T, in particular, is a bit more uncertain in these situations than the RM250T, probably because the bigger bike has an 11-pound-heavier engine that affects its handling characteristics somewhat.

Fortunately, these eccentricities only seem to pose problems while you're getting acclimated to your new T-model 250 or 400. Your initial orientation is not made any easier by the bike's high-peg, low-bar control layout, though. If you're more than about 5-foot-10, you feel hunkered-over when sitting, scrunched-up when standing and uncomfortably awkward *all* the time. If you can survive a day or two of the frequent step-offs and missed corners that result from this different-drummer personality, this unwieldiness gradually goes away and you can again ride with confidence without feeling like a rank beginner all over again. And you ultimately find that either RM is one of the best-turning, most highly responsive motocrossers you can throw a leg over.

So there should be no question that an RM250T or RM400T can be ridden blisteringly fast. There are, after all, thousands of them in use out there, most of which are regularly ridden in precisely that manner. And there's no doubt in anyone's mind that an RM can win races, because hordes of them do just that every weekend. Instead, the issue here is not what the RM can do but what Suzuki *didn't* do, and that was to significantly improve these motorcycles as much as the competition improved theirs. Because of that, anyone who wins a race on an RM this year will have had to work harder to do it.

That will, eventually, affect RM sales. Because while Suzuki might underestimate the performance capability of its competition, the motocross riders do not. And they're the ones who buy the motorcycles. —*Paul Dean*

KNOW YOUR BIKE



inside and out

TOTAL SERVICE MANUALS

9635	**BATAVUS** mopeds	$5.00
3727	**BRIDGESTONE** singles & twins, 50, 60, 90, 175	$5.50
0777	**BMW** twins, 500 & 600cc, 55-69	$8.50
0994	**BMW** twins, 500-1000cc, 70-78	$8.50
9453	**BSA** Bantams, 125, 150, 175, 48-67	$8.50
8910	**BSA** singles, 350, 500 & 600, 54-57	$8.50
0757	**BSA** singles, 250, 350, 450 & 500, 58-71	$8.50
0756	**BSA** twins, 500 & 650, 47-63	$8.50
9603	**BSA** twins, 500 & 650, for A50 & A65, 61-68	$8.50
9650	**BULTACO** singles, 125-370cc, all thru 77	$8.50
0535	**CZ** singles, 125, 250 & 400, 69-78	$8.50
8911	**CZ** twins, 250, 74-77	$8.50
3728	**DUCATI** singles, 160, 250, 350 & 450, all thru 74	$8.50
8912	**DUCATI** twins, 750, 860 & 900, 74-77	$8.50
8169	**GARELLI** mopeds, 76-78	$5.00
9614	**HARLEY-DAVIDSON** singles, 47-72	$6.95
0607	**HARLEY-DAVIDSON** Sportsters, 59-77	$8.50
0612	**HARLEY-DAVIDSON** 74 cu. in. V-twins, 59-78	$8.50
9649	**HODAKA** singles, 90-125cc, 63-78	$8.50
8913	**HONDA** singles, ATC70 & ATC90 models, 70-78	$8.50
8914	**HONDA** singles, XR75, 75-78	$8.50
3788	**HONDA** singles, 50-90cc, 64-75	$8.50
9785	**HONDA** singles, 4-stroke mdls, 100-350cc, 70-78	$8.50
0608	**HONDA** singles, Elsinore models, 125 & 250cc, 73-78	$8.50
0992	**HONDA** twins, 125-200cc, 64-77	$8.50
3752	**HONDA** twins, 250 & 305cc, 62-63	$8.50
0989	**HONDA** twins, 250 & 350cc, 64-74	$8.50
0561	**HONDA** twins, 250 & 360cc, 74-77	$8.50
8915	**HONDA** twins, 400cc Hawk, 78	$8.50
3749	**HONDA** twins, 450 & 500cc, 65-77	$8.50
8916	**HONDA** twins, CX500, 78	$8.50
9602	**HONDA** fours, 350, to 550cc, 72-78	$8.50
3755	**HONDA** fours, 750cc, 69-78	$8.50
8468	**HONDA** fours, GL-1000, 75-78	$8.50
9779	**HUSQVARNA** singles, 125-450cc, 66-75	$8.50
3754	**KAWASAKI** singles, 80-450cc, 66-77	$8.50
3791	**KAWASAKI** twins, 250 & 350, all A-series	$8.50
8469	**KAWASAKI** twins, KZ400, 74-78	$8.50
9601	**KAWASAKI** triples, 250-750cc, 69-77	$8.50
8917	**KAWASAKI** fours, KZ650, 76-78	$8.50
0840	**KAWASAKI** fours, 900 & 1000cc, 73-78	$8.50
9459	**LAMBRETTA** motorscooter, 57-72	$4.95
0613	**MAICO** singles, 250-501cc, 68-75	$8.50
8918	**MOBYLETTE** mopeds, 66-76	$8.50
9600	**MONTESSA** singles, 123-360cc, 66-75	$8.50
0505	**MOTO GUZZI** twins, 750,850 & 1000, 74-77	$8.50
0614	**NORTON** twins, 500,600 650 & 750, 49-68	$8.50
0692	**NORTON** twins, 750 & 850 Commando models, 68-77	$8.50
9794	**OSSA** singles, 125-250cc, 71-78	$8.50
0774	**PEUGEOT** mopeds, 76-78	$5.00
9852	**PUCH** mopeds, 76-77	$5.00
0610	**SACHS** engines, 100 & 125cc in Dalesman,DKW,Penton, Tyran	$8.50
8857	**SUZUKI** singles, 50-120cc, 64-78	$8.50
8858	**SUZUKI** singles, 125-400cc, 64-78	$8.50
8079	**SUZUKI** singles, 80-370cc RM-series, 75-77	$8.50
3792	**SUZUKI** twins, 125-500cc, 64-76	$8.50
8919	**SUZUKI** twins, GS400, 77-78	$8.50
9784	**SUZUKI** triples, 380-750cc, 72-77	$8.50
8920	**SUZUKI** fours, GS550, 77-78	$8.50
8080	**SUZUKI** fours, GS750, 77-79	$8.50
0948	**TRIUMPH** twins, 500 & 650 pre-unit models, 47-62	$8.50
3753	**TRIUMPH** twins, 500,650 & 750, 63-76	$8.50
0893	**TRIUMPH** triples, Trident & BSA Rocket, 69-72	$8.50
0909	**VELOCETTE** singles, 350 & 500, 53-70	$8.50
0910	**VESPA** scooters, 64-76	$8.50
8292	**VESPA** mopeds, Ciao & Bravo models, 71-77	$8.50
3747	**YAMAHA** singles, 50-100cc rotary valve mdls, 63-76	$8.50
8651	**YAMAHA** singles, 80-175cc Enduro,Motocross, 68-78	$8.50
8652	**YAMAHA** singles, 250-500cc Enduro,Motocross, 68-78	$8.50
8921	**YAMAHA** singles, XT500 & TT500 models, 76-78	$8.50
8398	**YAMAHA** twins, 90-200cc, 66-77	$8.50
8399	**YAMAHA** twins, 250-400cc, 65-78	$8.50
3724	**YAMAHA** twins, XS360 & XS400, 76-78	$8.50
8922	**YAMAHA** twins, TX500 & XS500, 73-78	$8.50
9775	**YAMAHA** twins, 650cc, 70-78	$8.50
8323	**YAMAHA** twins, TX750 model	$8.50
0720	**YAMAHA** triples, XS750, 76-79	$8.50

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PRODUCT EVALUATION:

Thurlow-Manxman Gloves

A double-handful of goodness.

• Frankly, most of the time second-best turns out to be first-boring. Close, but perpetually no cigar. And for precisely that reason, a pair of Thurlow-Manxman gloves has become a permanent addition to my riding wardrobe.

The elements that go into earning the gloves room in my gear closet are simplicity itself: quality materials and craftsmanship. Absolutely no tricks, no gimmicks; no ziplock pouches with umbrellas, changemakers or flashlights concealed within. Just deerskin and chamois, solid stitching and a timeless design.

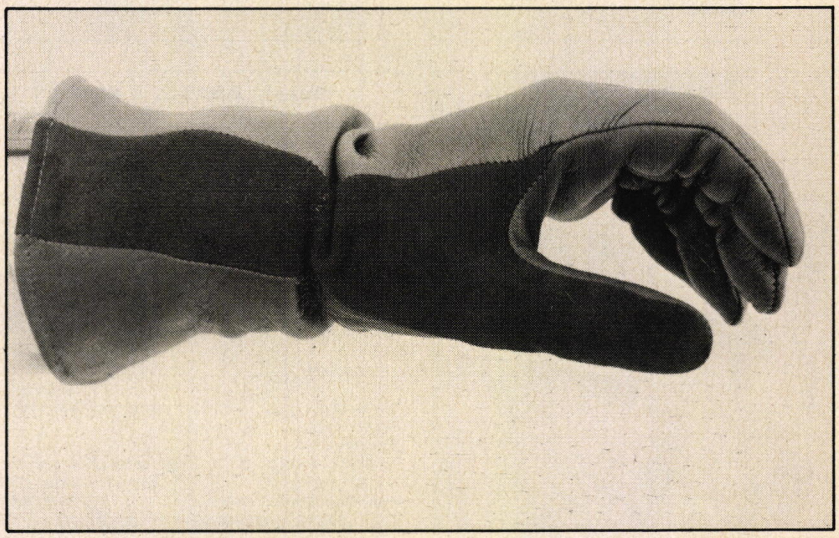
That the gloves resemble something belonging in the prop room of a Robin Hood movie doesn't deter me, because the design is nothing if not practical. The four-inch guantlet reaches to the middle of my forearm, while an elastic band stretches across the inside wrist of the glove, keeping it in place. Chamois runs in an inch-wide strip along the thumb-side seam from the edge of the gauntlet to the tip of the thumb on both gloves, where it's in just the right place to wipe moisture from a faceshield.

Slipping into the Thurlow gloves is just a shade sinful. I'm tempted to mutter something about letting the peasants eat cake. They're that comfortable. And they stay comfortable when you ride in them, because there are no seams across the palms or the knuckles to chafe your hands. That, plus the deerskin is artfully tanned and as supple a leather as I've seen. Break-in time consists of pulling them on when you first take them from the box. Period.

If the Thurlow gloves aren't perfect, they do a good impersonation; of course, perfection isn't inexpensive. But even at a retail price of $42 ($49 for a thermal-lined pair) these gloves are a screaming deal. They carry a full-year workmanship warranty, and the seams are guaranteed for the life of the leather. If any of the seams come apart on their own (excluding race-use or crash damage) Thurlow-Manxman will fix them. Free. Simply send them to Bavarian Cycle Works, the retail distributor, at 385 8th Street, San Francisco, California 94103. Repairs at your own cost for non-covered damage can be handled as well.

While the gloves can be had in sizes Extra-Small though Extra-Large, the firm recommends that you send a tracing of your hands with your order to insure the best fit. If your hand won't fit an off-the-rack pair, custom-made gloves can be ordered at extra cost. The gloves are available in black or an attractive medium brown.

These gloves show the quality that went into them, and barring loss or some light-fingered borrowing I expect them to last for years. And when they eventually do fall victim to time and much wear, I'm going to replace them with another pair of the same. My reasoning is this: Having the best is worth it. —*Larry Works*



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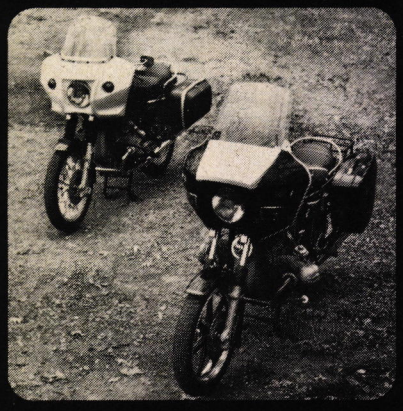

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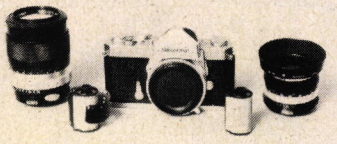

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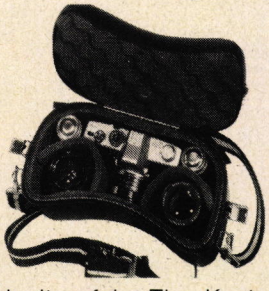

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PRODUCT EVALUATION:

Thumb Wheel Ratchet

Like some fine wines: adequate to the task, but it doesn't travel well.

• On the face of it, the Kraeuter Thumb Wheel Ratchet set looks to be the answer to a motorcyclist's dream. Here, contained within a pouch small enough to tuck in a bike's tool kit are most of the elements of a complete socket set.

When I first saw an advertisement for the Kraeuter kit, I figured it would fit my needs—and likely end up displacing some of the low-grade OEM tools in my bike's tool kit in the bargain. Well, I wasn't disappointed about the quality of the eight-piece set, which is first-rate. But it didn't work out the way I'd figured, either.

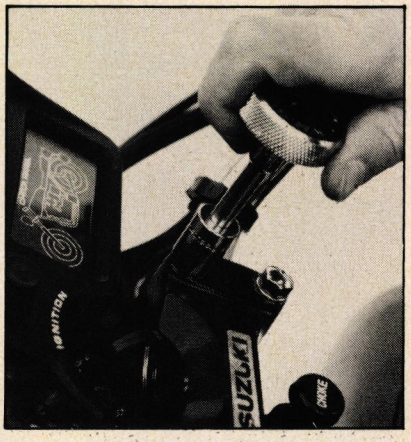
First off, the set arrived from Howard Products Company, P.O. Box 57246, Dallas, Texas 75207. But it wasn't in metric. A quick check with the set's distributor revealed that it won't be available in metric calibration until sometime next year, if then. Well, no great matter; quarter-inch metric sockets aren't hard to come by, and I had planned on tailoring the kit to include only the sockets that my bike requires, anyway. With the right pieces in hand, I'd be covered if anything needed fixing while I was out on the road. At least, that was what I had in mind.

But the design of the Thumb Wheel Ratchet got in the way of things, even if the tool itself didn't. The main component of the kit, the ratchet, is basically the head of a socket wrench minus a handle extension. But as I found out, without some protrusion to get hold of and to provide the necessary leverage, breaking loose cinched-down nuts was a losing proposition. Even though the head is knurled all the way around its circumference, my hand slipped before the nuts broke free.

So here I had this $15.95 tool in hand—one that didn't seem to fit the bill. It did everything the ad had claimed—it was small and well-built and all that—but it just didn't do what I wanted it to. So, I benched it. And it sat on a tool rack unused until one day, when I couldn't quite reach the back bolt to pull off the airbox of a bike I was working on. I'd broken it loose, but it was hard to get at. The Kraeuter tool came off of the bench, and with its two-inch extension in place, the bolt was out in a matter of seconds.

Since then, the Thumb Wheel Ratchet has gotten plenty of use. It's invaluable when I'm working in a tight place on a teardown. No, I gave up on packing the Thumb Wheel with the tools I take when I go riding. It's in the garage, where I keep all of my shop tools.

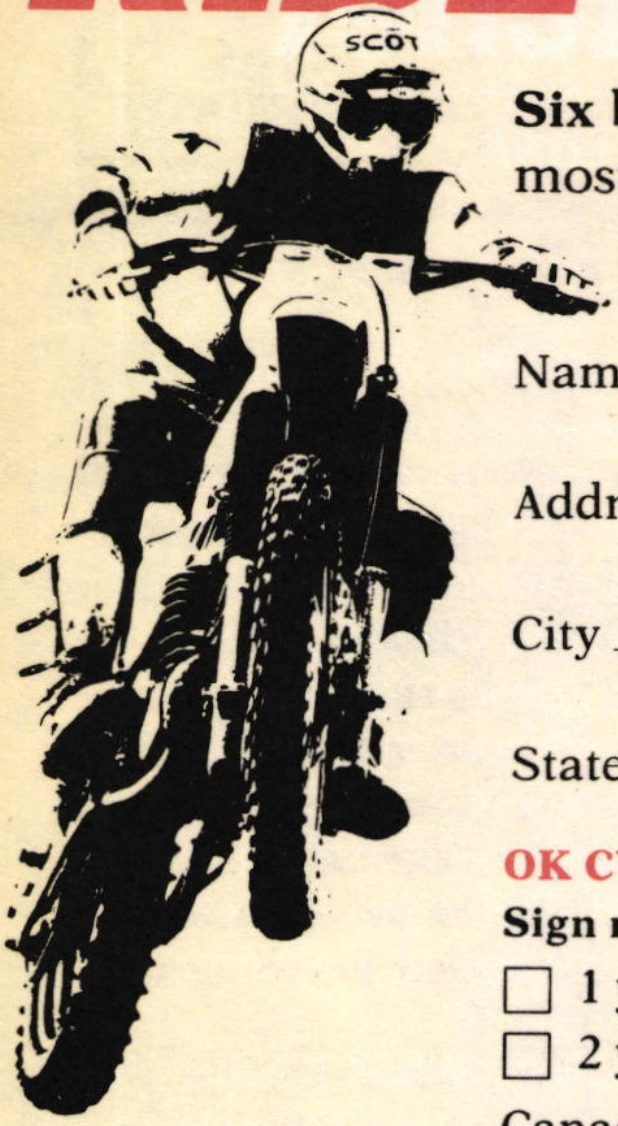
—Larry Works



Thumb Wheel Ratchet is deeply knurled

But grip slips before bolt shifts.

RIDE FOR LESS



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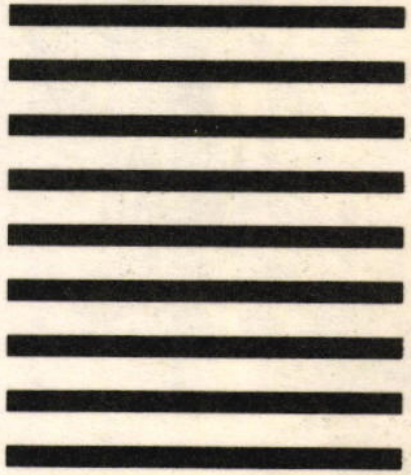
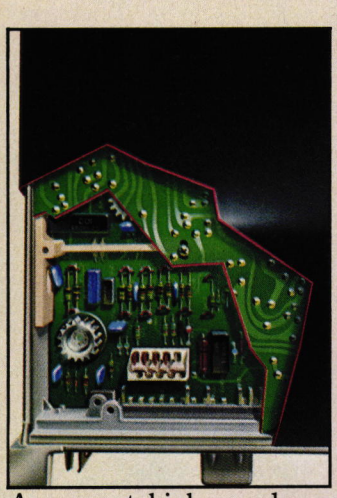
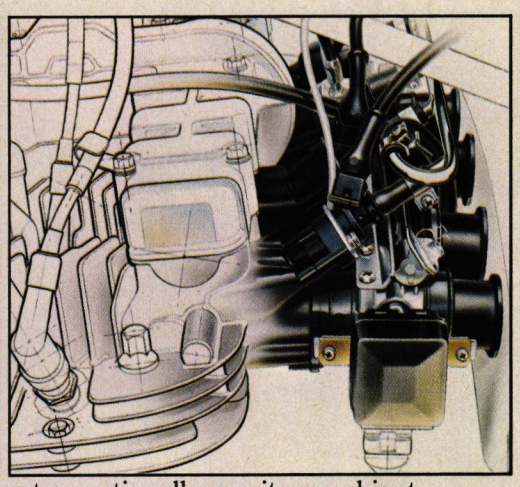


There are a lot of people with good ideas. But damn few who can make one work.

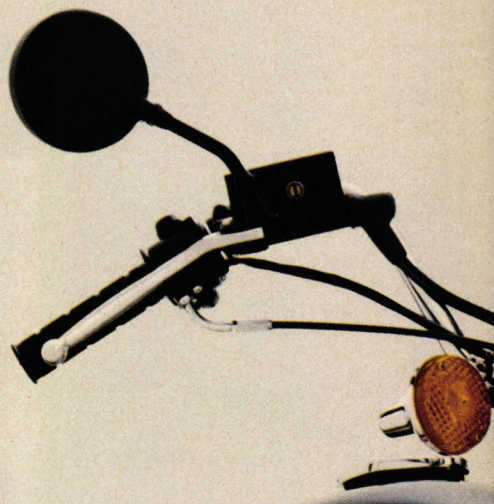
Kawasaki

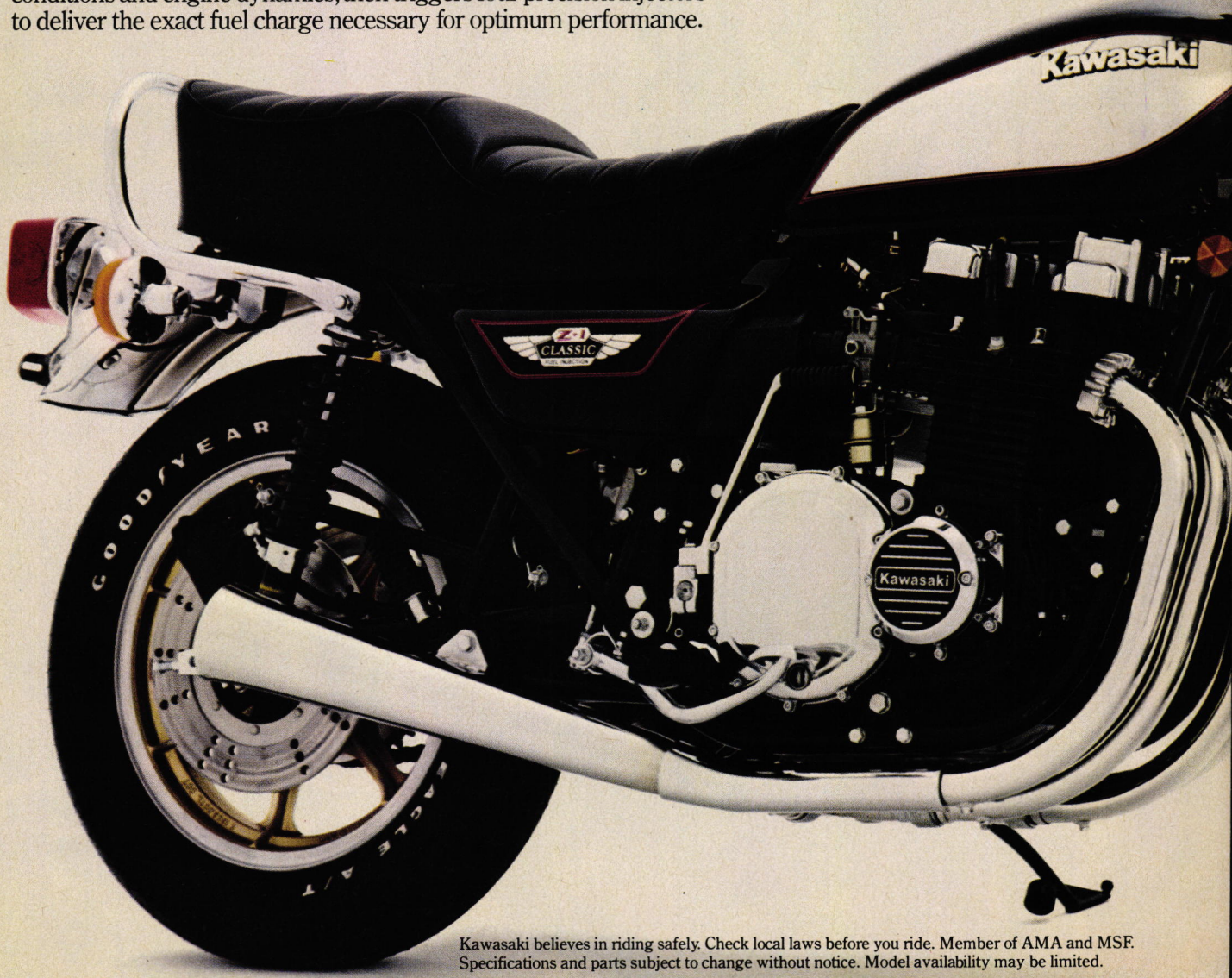
Electronic Fuel Injection was always a good idea. Making it work was an even better one.





A compact, high-speed computer continually monitors ambient conditions and engine dynamics, then triggers four precision injectors to deliver the exact fuel charge necessary for optimum performance.





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At Kawasaki, Electronic Fuel Injection is more than idle thinking. We've put a brain behind it. A compact high-speed computer that fine tunes the fuel mixture to meet engine demands. At start-up, an engine needs a high ratio of fuel to air; that ratio changes as you accelerate, when cruising, again when idling. In all cases, the Z-1 Classic is the only motorcycle to meet those demands with the precision of solid state, electronic microcircuitry.

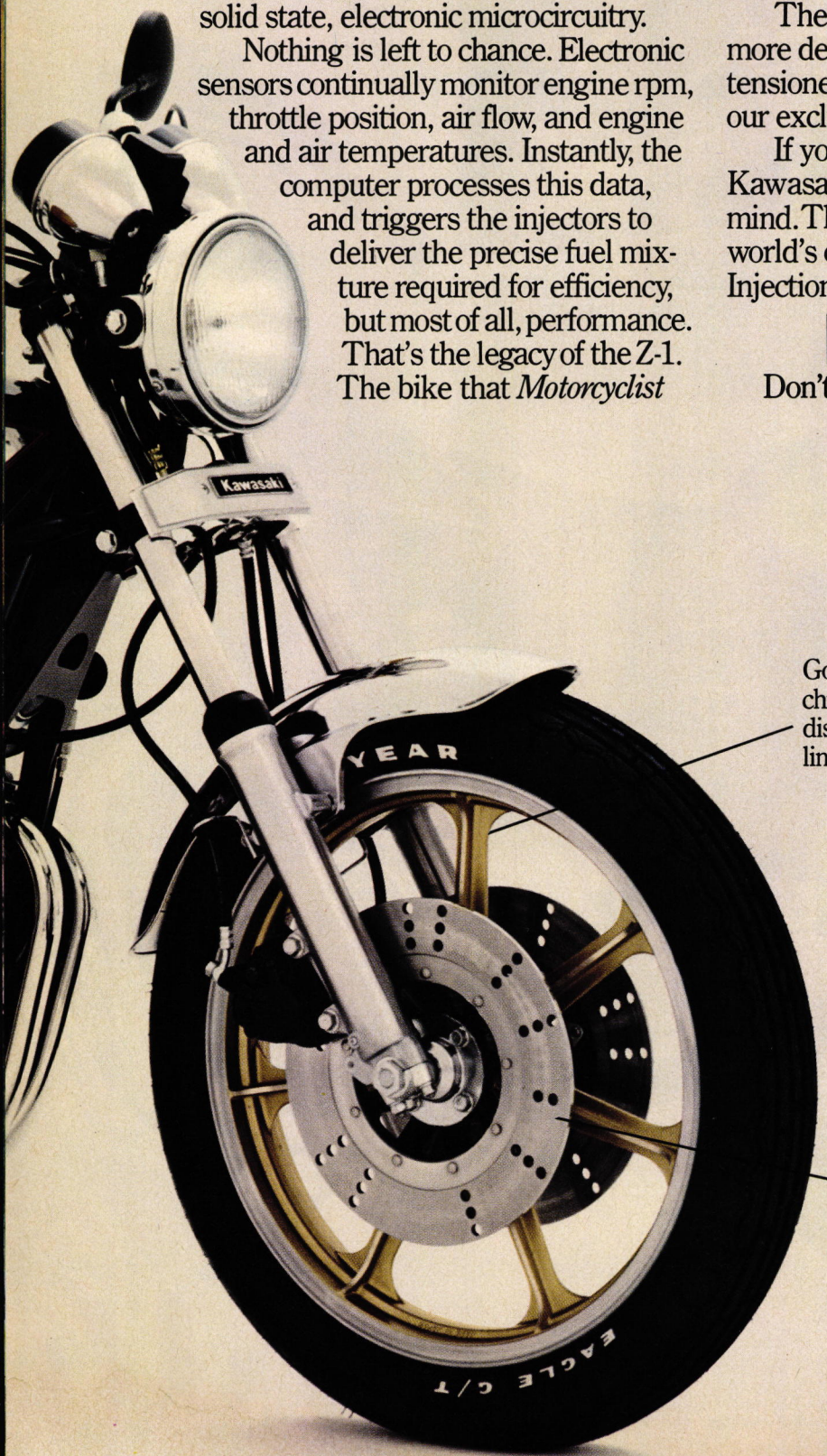
Nothing is left to chance. Electronic sensors continually monitor engine rpm, throttle position, air flow, and engine and air temperatures. Instantly, the computer processes this data, and triggers the injectors to deliver the precise fuel mixture required for efficiency, but most of all, performance. That's the legacy of the Z-1. The bike that *Motorcyclist Magazine* named the "Most Significant" and "Most Desirable" motorcycle of the decade.

The Z-1 Classic Limited Edition is even more desirable; with automatic cam chain tensioner, transistorized breakerless ignition, our exclusive Clean Air System. And more.

If you've got a mind for details, ask your Kawasaki dealer about the motorcycle with a mind. The Z-1 Classic Limited Edition. The world's only motorcycle with Electronic Fuel Injection as standard equipment.

Kawasaki

Don't let the good times pass you by.

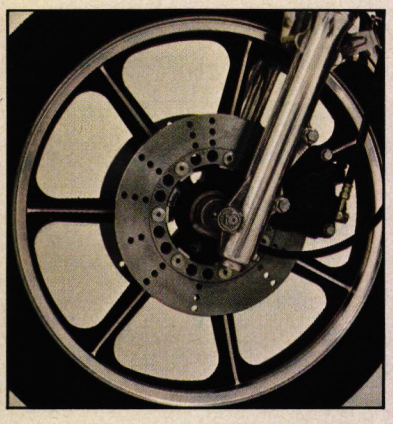


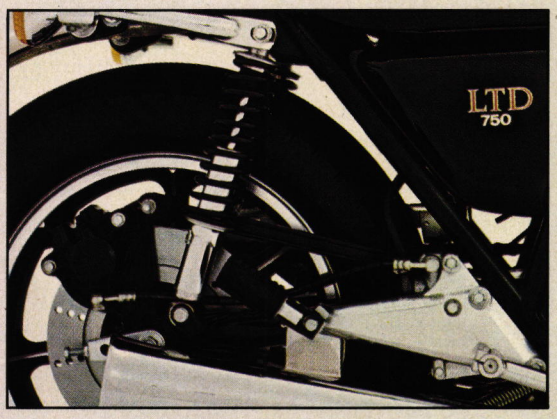
Gold cast alloy wheels and chrome plated fuel tank are distinctive signatures of the limited edition Z-1 Classic.

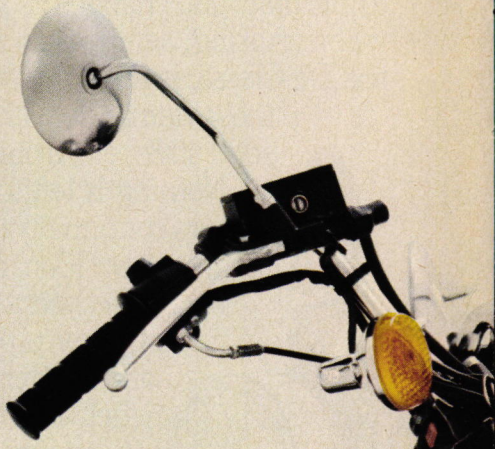
Triple drilled discs with sintered metallic pads for smooth, powerful braking.

Getting a handle on a good idea is one thing. Getting a good idea to handle is another.

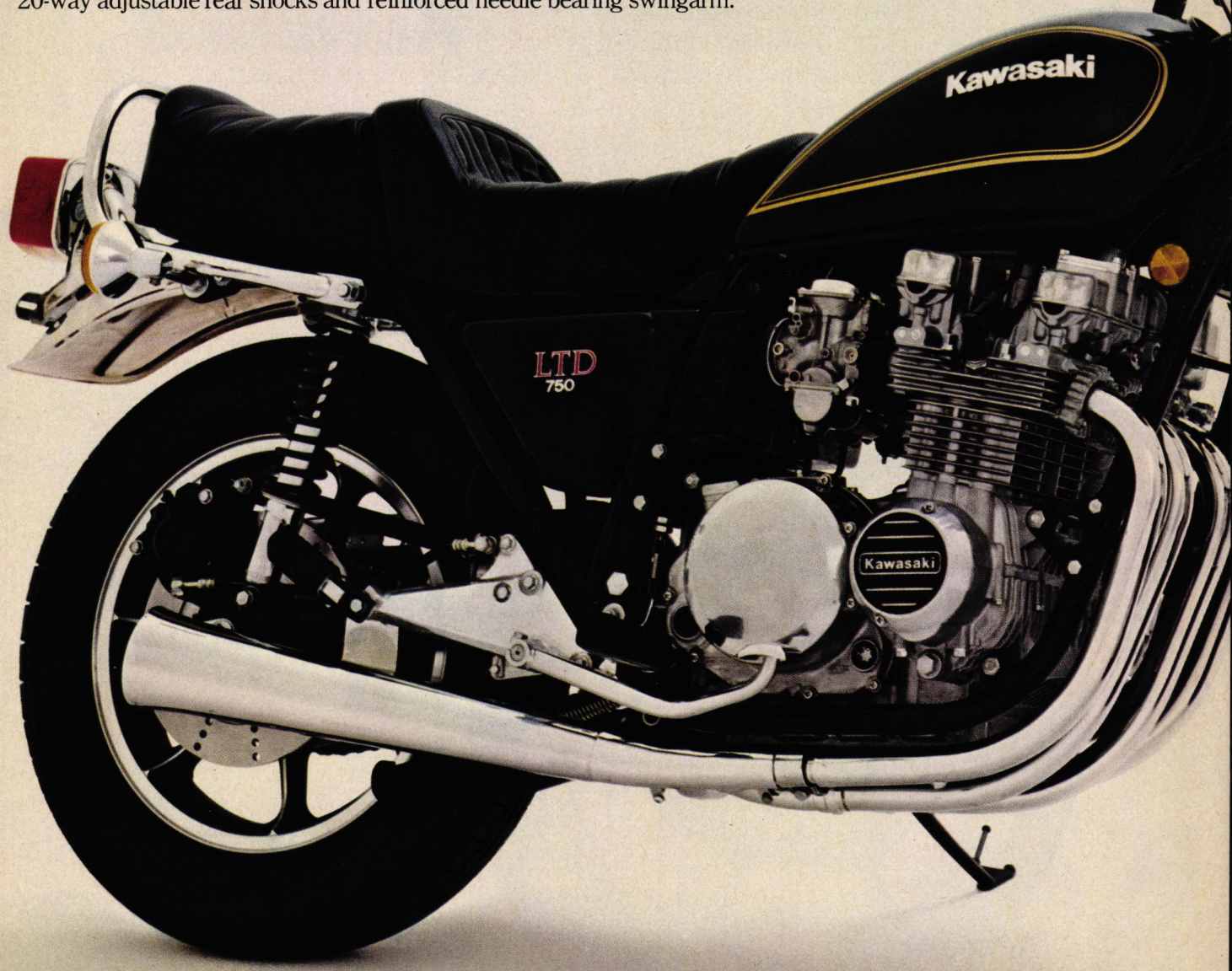
Introducing The KZ750/4 LTD.







The most advanced suspension in its class: air-adjustable leading axle forks, 20-way adjustable rear shocks and reinforced needle bearing swingarm.



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American Sports Styling. A good idea, sure. Dress'em up. But can you take them anywhere? Face it, there are times when even the best rider wishes his style-bike were a road racer. Like when the road gets a little too tough to handle. A bank too steep. A curve too tricky. But now going in style is something everyone can handle.

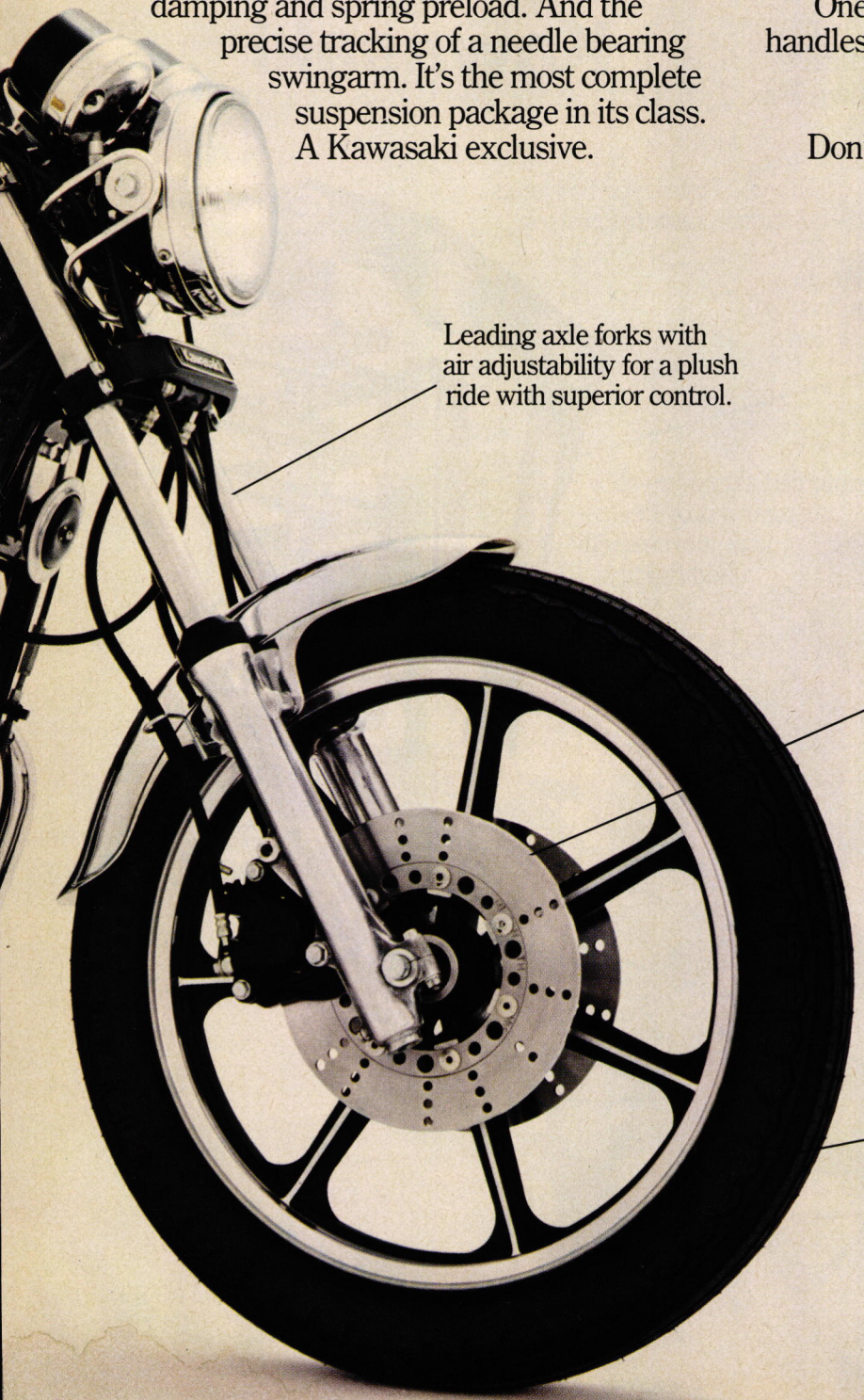
Enter the KZ750/4 LTD. A machine that caters to your every whim. With a super-sophisticated suspension system that puts you in control. Air-adjustable leading axle front forks. Plus, rear shocks you can fine tune for damping and spring preload. And the precise tracking of a needle bearing swingarm. It's the most complete suspension package in its class. A Kawasaki exclusive.

A word about what you'll be handling. A larger displacement version of the legendary double overhead cam engine that holds world records for speed and endurance. There's more. The KZ750/4 LTD boasts more standard features than any other bike in its class. A quartz halogen headlight, pullback handlebars, cast alloy wheels (16″ in back), tubeless tires, two piece stepped seat, maintenance-free transistorized breakerless ignition, constant velocity 34mm Keihin carbs, even Kawasaki's exclusive Clean Air System.

One other nice thing about the bike that handles: You can handle the price, too.

Kawasaki

Don't let the good times pass you by.



Leading axle forks with air adjustability for a plush ride with superior control.

Triple drilled discs with sintered metallic pads for smooth, powerful braking.

Performance-designed tubeless tires are mounted on tough, cast aluminum alloy wheels.

When we created a better suspension system, we weren't just spinning our wheels.

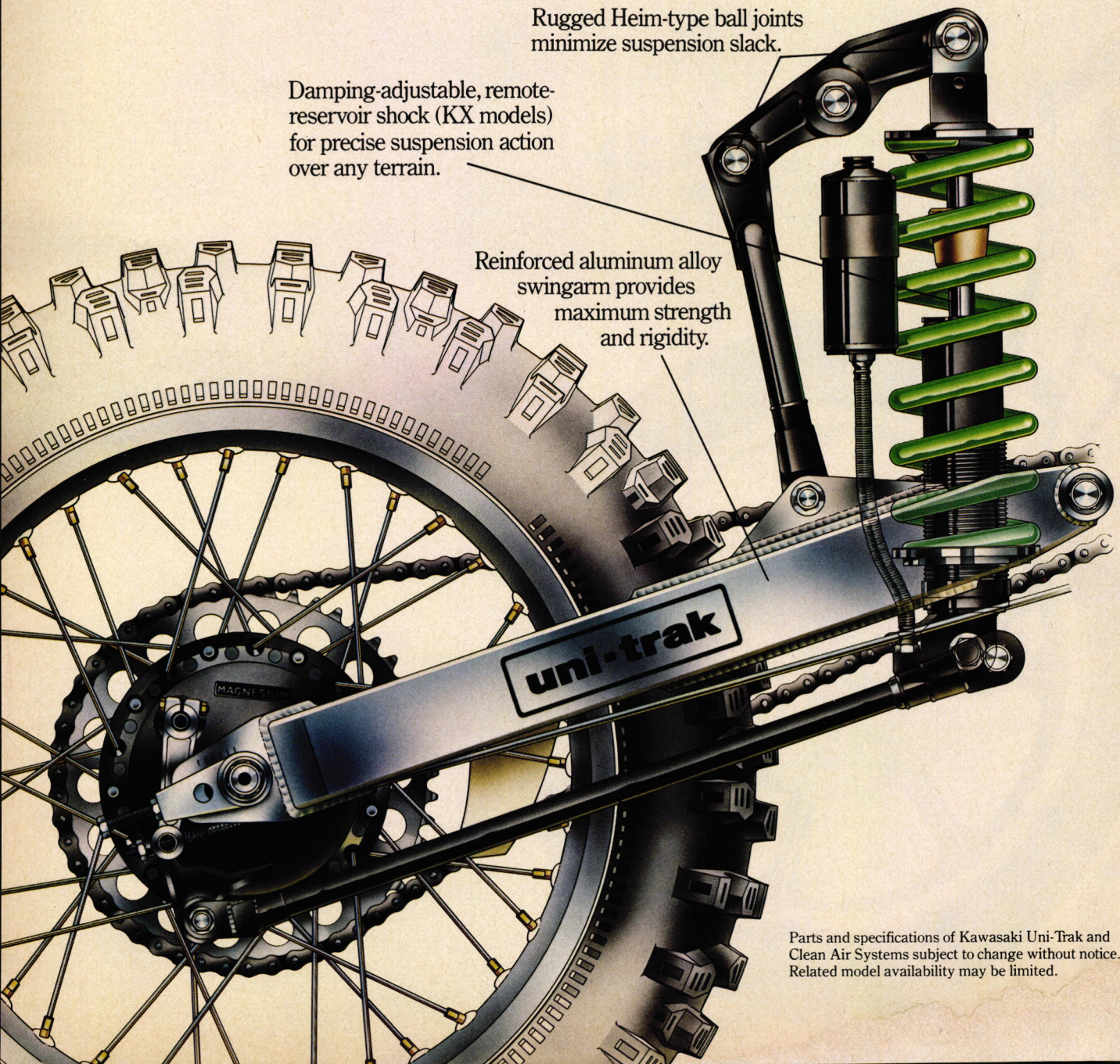
Uni-Trak.™ While everyone else had their heads in the clouds, we had our wheels on the ground. Longer. Longer than any other form of suspension, according to Team Kawasaki rider Brad Lackey. And with more European moto wins than any other rider on the circuit last year, he oughta know.

Uni-Trak. One strong shock connected to the swingarm through a rockerarm. The rear wheel moves parallel to the shock, vertical to the ground. The center of gravity is down low and central, to work for you—not against you. You hook up better in the corners as well as down the straights. You track straighter through the stutter-bumps and whoops.

You'll be seeing a lot of imitators in the years ahead. When you do, remember the people that made the original one work. The guys up ahead on the track. Kawasaki.

Kawasaki

Don't let the good times pass you by.


Rugged Heim-type ball joints minimize suspension slack.
Damping-adjustable, remote-reservoir shock (KX models) for precise suspension action over any terrain.
Reinforced aluminum alloy swingarm provides maximum strength and rigidity.
uni-trak

Parts and specifications of Kawasaki Uni-Trak and Clean Air Systems subject to change without notice. Related model availability may be limited.

Kawasaki's exclusive Clean Air System. Meeting EPA standards doesn't mean lowering ours.

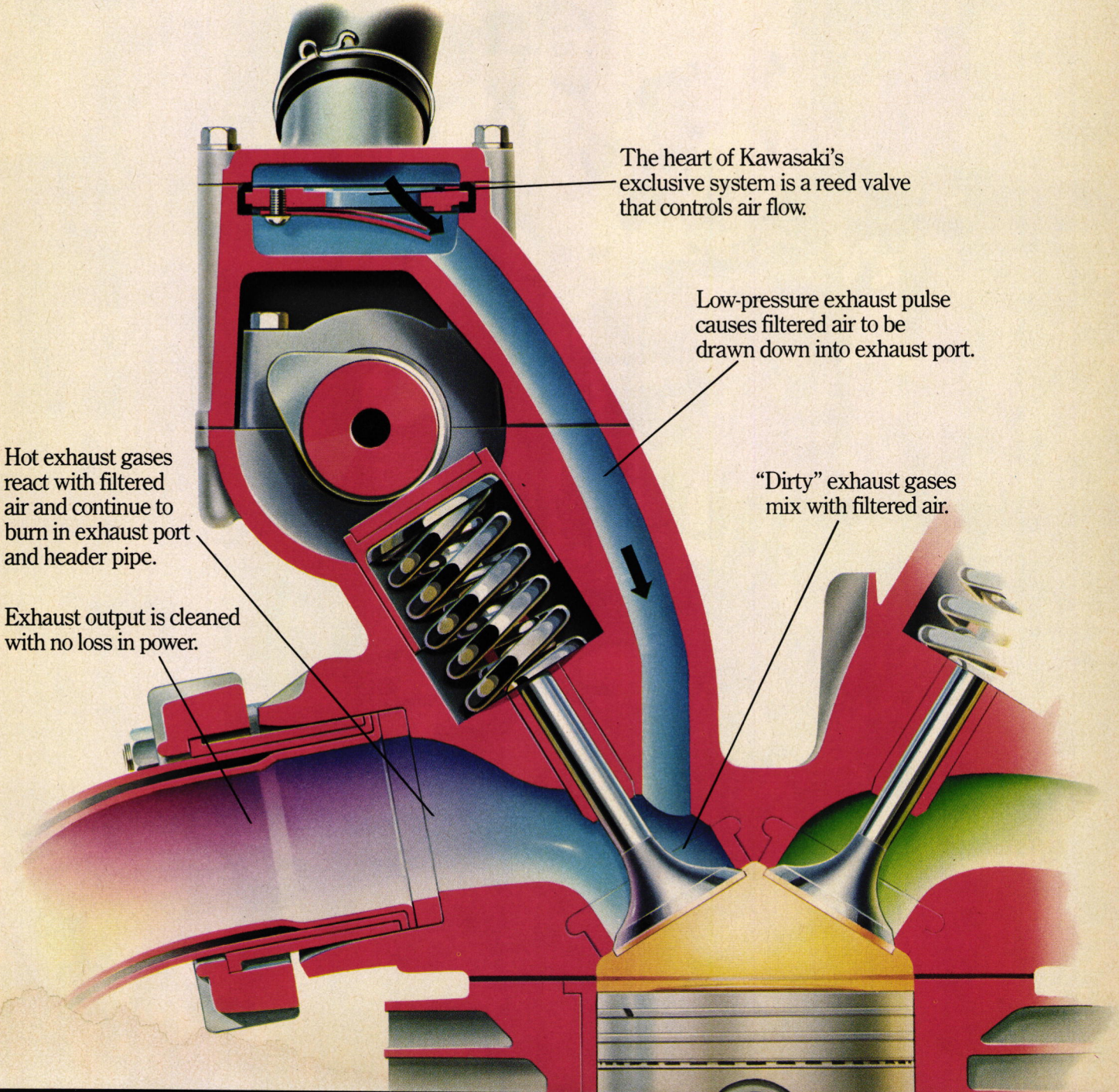
Performance. For some, meeting tougher EPA standards brought a tear to the eyes. For others, pollution had much the same effect. The solution? Locate a small reed valve above each cylinder that helps the engine clean up its exhaust without a loss in power. A simple idea. The best ideas always are.

This is how it works: Between combustion cycles, there's a low pressure pulse that occurs just after the exhaust valve closes. This pulse opens a reed valve which admits filtered air into the exhaust port. Because of the high heat already present, unburned combustion gases combine with this extra air, and emissions are effectively reduced. More effectively than a smog pump or catalytic converter, because our clean air system doesn't rob power.

There you have it. Performance. A standard we've always had. One we'll always keep.

Kawasaki

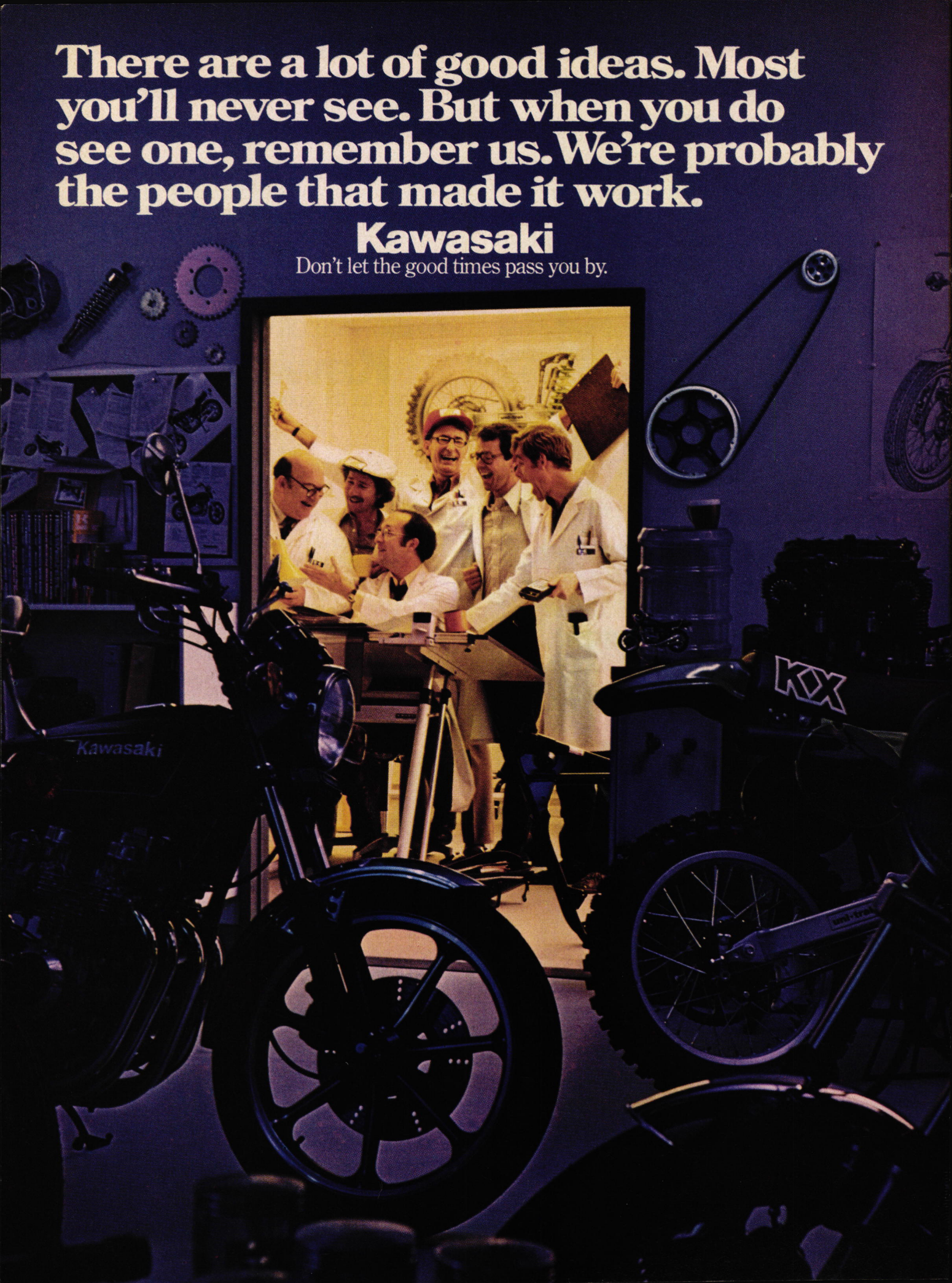
Don't let the good times pass you by.


The heart of Kawasaki's exclusive system is a reed valve that controls air flow.
Low-pressure exhaust pulse causes filtered air to be drawn down into exhaust port.
Hot exhaust gases react with filtered air and continue to burn in exhaust port and header pipe.
"Dirty" exhaust gases mix with filtered air.
Exhaust output is cleaned with no loss in power.

There are a lot of good ideas. Most you'll never see. But when you do see one, remember us. We're probably the people that made it work.

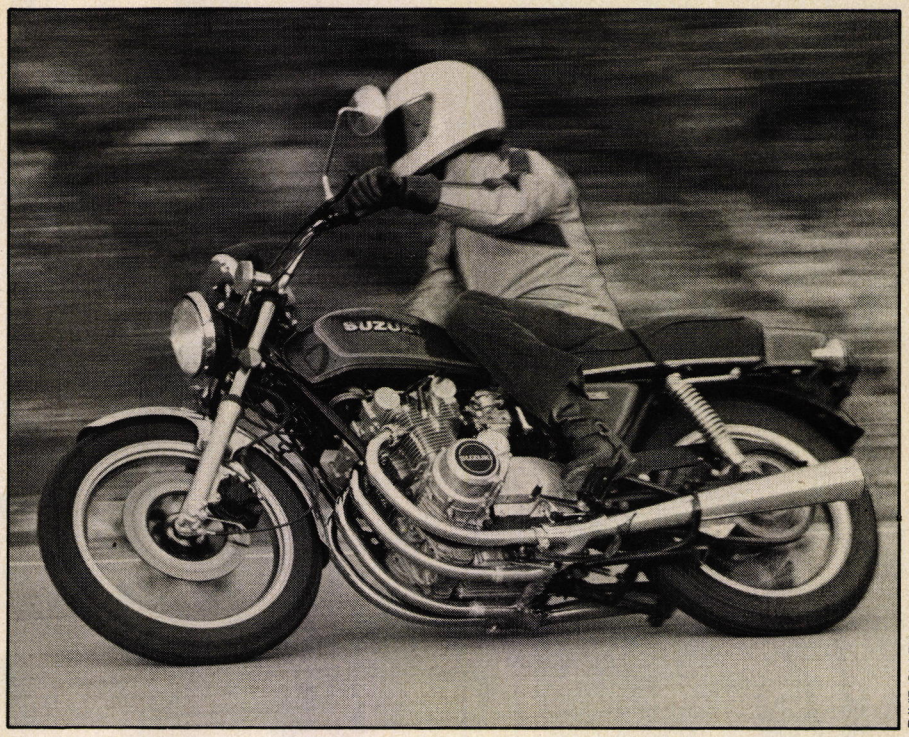
Kawasaki

Don't let the good times pass you by.



Suzuki GS550E

Providing peak performance in the cylinder/dollar category.



DAVID CLARK

• Affordable multi-cylinder motorcycles are becoming scarce. Inflation and fluctuating monetary-exchange rates have pushed the price of most of the breed into or near the $3000 category. Still, the Suzuki GS550E isn't one of the victims; it carries a price tag closer to $2000.

The 550 might be inexpensive to buy, but your buy-in won't net you a cheap imitation of a multi. In fact, this DOHC engine has the flavor of a bigger engine in terms of sheer output. It's even easy to forget the 550 is a medium-displacement machine. For that reason, enthusiasts who can't afford a $3500 superbike often turn to the Suzuki GS550E.

Since its 1977 introduction, the 550 gradually has been upgraded to true big-bike status with big-bike features. The 1980 edition has cast wheels, a rear disc brake and a stepped seat. The understated GS styling even makes it look a lot like last year's GS750E.

The changes to the engine are as subtle as the styling alterations. The most significant change for 1980 is the switch from 22mm slide/ needle carbs to 32mm Mikuni constant-velocity carburetors. As with most things these days, the reason behind the switch is the new, tougher EPA regulations. So what you get with your bigger carbs is a motorcycle that's very hard to wake up early in the morning. Pull the choke knob that's mounted now on the dash, push the start button and the 550 fires up in seconds. But you have to leave the choke on for a long, long time and suffer while the engine revs at an irritating 4000 rpm for at least five minutes before you should even think of clicking the six-speed transmission into first gear.

Once you're ready to go, prepare for another irritation. Because if you don't slip the clutch like you would on a roadrace bike and make sure there's plenty of throttle, the four-cylinder coughs and wheezes like four tiny lungs sharing an asthma attack. The low-rpm flat spot doesn't come to an end until the tach needle swings past 3500 rpm, and even then the 550 doesn't really find its legs until 5000 rpm is on the clock.

Once above the 5000-rpm cloud layer, you can see the sun shining brightly and begin to enjoy the 550. When you're in the power-band—out of the carburetor band, actually—the engine responds like a 750. It won't snap your neck with a burst of explosive power, but it's smooth and moves the speedometer to 85 mph in a hurry—faster than any previous GS550, in fact. Packed behind the little screamer's roller-bearing crankshaft is a close-ratio transmission that shifts smoothly, helping you maintain the 5000 rpm mark. If you forget what gear you're in, just scan the digital read-out on the dashboard and it'll beam the answer back to you in avionics-red.

Roadracer-like precision in the corners

Backed by a six-speed superbike punch.

If you like the 550's roadracer-like power-band, you'll love the way it handles on the curves. A combination of nimble steering and Suzuki's customary superior suspension makes it easy for you to become fascinated with left-right combinations on the road. The precise steering actually helps the 550 handle something like a small sport bike, say an RD400F Yamaha twin.

The 550 sheds its little-bike personality on the freeway, though. It slips back into 750-mode, the soft suspension flattening the bumps and expansion joints that little bikes usually stumble over. Part of the reason lies in the fact that the GS550's fork now has anti-stiction bushings like its big brothers, allowing the fork to respond smoothly to even small inputs.

Further 1980 refinements in the 550 include tapered roller bearings for the steering head, a transistorized ignition and doglegged control levers. And the kickstarter is missing for 1980, simply because it was seldom required.

Bikes that cost less than $2500 are becoming as scarce as kickstarters on street bikes these days, but the 550 toes the line with a price of $2139. It's the cheapest multi you can buy, a kind of school boy's racer, a bargain in an age short on bargains. Unfortunately, its price and superbike aspirations are flawed by a flat spot in the carburetion that seems as vast and bottomless as a black hole in space. And it's this alone that makes it hard to enjoy the GS550E.

—Dain Gingerelli

Suzuki GS550E

Importer: U.S. Suzuki Motor Co.
13767 Freeway Drive
Santa Fe Springs, California 90670

Category	street
Suggested retail price:	$2139
Engine type	four-stroke transverse vertical four
Valve arrangement	double overhead camshafts
Bore and stroke	56.0mm x 55.8mm
Displacement	549.7cc
Carburetion	four 32mm Mikuni constant-velocity
Gearbox	6-speed
Final drive ratio	3.33:1
Front fork/wheel travel	35mm stanchion tube diameter/5.8 in. (147mm)
Rear shocks/wheel travel	5-way adjustable preload/4.0 in. (102mm)
Wheelbase	56.9 to 58.1 in. (144.5 to 147.6cm)
Seat height	32.0 in. (813mm)
Weight	442 lbs. (200.5kg)
Fuel consumption	39.0 to 42.0 mpg (16.6 to 17.9 km/l)

Luxury

SUZUKI 1980

The Performer.

Ride safely. Always wear a helmet, eye protection and appropriate riding apparel. Member Motorcycle Safety Foundation

Cruiser.

This bike, friends, is enough to send other cruisers down the boulevard of broken dreams.

Honest, the new GS-1100L is that good.

Why? To begin with, it's powered by a unique 16-valve head 4-stroke with a patented Twin Swirl Combustion Chamber design.

Is that good? It's great. Because fuel is burned more efficiently. Thus, more power is produced. More than any conventional 4-stroke.

This new engine is only part of the story. Other parts include triple disc brakes. Slotted, no less.

And leading axle front air forks.

And 5-way adjustable rear shocks with 4-way rebound dampers.

And the story continues: Fully-transistorized pointless ignition. Electric fuel gauge. Halogen headlight. Teardrop tank. Pull-back handlebars. Plush step saddle. Chopped pipes. And a fat 16" rear tire.

End of story? Nope. Get this: Like all 1980 GS models, this bike is backed by a 12-month unlimited mileage warranty.*

Now go cruise in luxury.

1980 GS Model
TWELVE-MONTH UNLIMITED MILEAGE WARRANTY*

*See "Limited Warranty" brochure for details. This warranty furnished only in the 48 contiguous United States and Alaska.

ROAD TEST:

Kawasaki Z1-R

Black magic transforms a feeble profiler into a backroad scratcher.

BY DAIN GINGERELLI

The Z1-R has returned to Kawasaki's assembly lines after a year's absence and finally there's more to excite you than the sleek lines of its quarter-fairing, tank and sidepanels. For the first time, the lines the Z1-R scribes through the corners are as finely drawn as those of the styling.

You don't have to look far beneath the deep black paint of the new Z1-R to account for its newfound ability. Kawasaki has combined the contemporary and performance-proven hardware of the current standard KZ1000 (called the MkII last year) with the speed-styled cosmetics of the Z1-R. As a result, the new edition of the Z1-R takes the corners like a thoroughbred instead of a rank mustang.

Though the new bike mixes many of the features of the KZ1000 with the old Z1-R into a new package, the 1980 version is more than just a rehash of old pieces. New steering geometry has made one of the largest contributions to the bike's cornering capability.

The story of the new bike's steering revision actually begins with the original Z-1 in 1973. The heavy, 903cc engine, larger than any previous motor in a Japanese bike, worried Kawasaki engineers. They felt the added weight would make the bike cumbersome at low speeds, so they dealt it unusually quick steering geometry. The small amount of trail gave the Z-1's steering a light feel, but the engineers didn't account for the after-effects of quick steering on a powerful bike that had stiff suspension, a marginal frame and a massive engine. Consequently, the Zee would have been a wobbler in any case. But the sensitive steering contributed to the problem by either inducing or magnifying wobbles.

This handling characteristic plagued big Kawasakis into the Z-1R's inaugural year of 1978, which didn't do much to hold up its sport-bike image. But Kawasaki's engineers had been attacking the problem for a few years and by 1979, on the KZ1000 MkII, finally eliminated the major wobble problem. Much of the MkII's frame and suspension technology has been applied to the new Z1-R to help cure its tendencies to wiggle. This included substituting the older's R's 18-inch front wheel with a more conventional 19-inch unit, and by reducing the offset of the fork's triple clamps, both of which are changes that increase front wheel trail.

For the Z-1R, as with all KZ1000s since 1979, the consequences of this change are significant. At high speeds, the Z1-R steers with the precision and quickness associated with the best high-performance bikes. The bike responds to your commands a little more slowly than before because of the increase in steering trail, yet the chassis still can clip apexes as tight as before. That's because a new swingarm has shortened the wheelbase a half-inch, making the bike more willing to change direction. As a result, the Z1-R answers you quickly, but without the initial suddenness that used to upset it. Unfortunately, the motorcycle feels top-heavy during low-speed maneuvers because even the new Z1-R handlebars don't provide the leverage of taller conventional bars, even though they're wider than the old Z1-R bars.

Improved steering geometry is only one of the benefits of using the KZ1000 frame. The double-wall tubing of both front downtubes locates the steering head more rigidly—which helps fight wobbles—but it also damps engine vibrations before they seep into the frame backbone and handlebars. The slightly beefier pressed-together crankshaft of the present KZ1000 engine with its new balance factor further helps refine the vibrations the original Z1-R was noted for. As a result, you can look into the new bike's mirrors and actually see the traffic behind you instead of colorful, fuzzy shapes.

The KZ1000 frame doesn't account for the improvement in handling all by itself, though. A good frame can't handle the road unless the suspension can. So Kawasaki scrapped the stiff-legged fork and shocks that belonged to the former Z1-R. The new fork began with KZ1000 specifications. The spring rate is the same, but preload has been increased five percent. Damping remains the same as that used on early Z1-Rs, though. Meanwhile, the new Z1-R's rear shocks and springs have been lifted directly from the KZ1000 parts shelf, and are much softer than the original bike's equipment.

In practice, the 1980 Z1-R's suspension provides greater comfort than before, but it's still calibrated for a hint of racetrack-quality stiffness. The fork feels a little stiff on the freeway or other choppy surfaces. Even so, suspension action fore and aft is much smoother and features far more compliance on small bumps. There's no comparison between this black-magic Z1-R and the 1978 silver edition during a tucked-in assault on your favorite bit of shadow-splashed twisting road. The wheels stay on the ground instead of skipping across the bumps, allowing you to find your apexes with confidence. The Kawasaki's suspension doesn't exactly deliver Suzuki GS1000S comfort or confidence, but you'll outdistance every silver Z1-R you encounter.

If you do decide to pick a fight with a Suzuki S-type, do it at the drag strip.

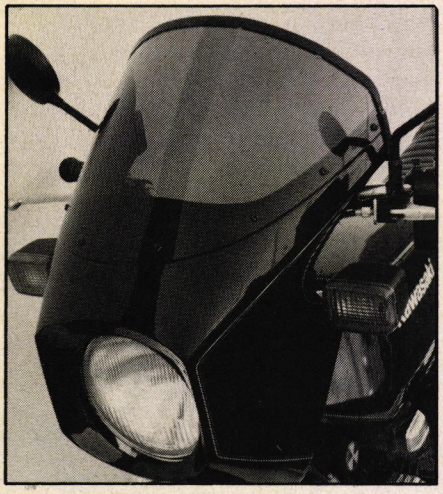
There, the Z1-R is no different from any previous KZ1000—it's got a muscle-motor that loves to growl at the opposition when the Christmas tree lights begin their countdown. By the time you trip the lights at the end of a quarter-mile, you'll have more than a tenth of a second advantage over a Suzuki GS1000S rider.

The engine responsible for the Z1-R's magic margin at the drags comes directly from the KZ1000, right down to the finned ignition and generator covers. Kawasaki has bolstered this engine with some newer technology, however. The four-into-two exhaust system that replaces the old four-into-one has twin power chambers tucked underneath the frame. The exhaust tuning it affords delivers one more horsepower than the standard KZ1000. You'll be most aware of its presence though, when it grinds into the pavement on right-hand corners.

Contributing to the Z1-R engine's substantial horsepower rating is Kawasaki's exclusive Air Suction emissions equipment. Four separate reed valves are located in a transverse housing atop the exhaust-cam cover. The vacuum created during the exhaust cycle sucks air through the reeds from hoses connected to the airbox. The added blast of air helps oxidize

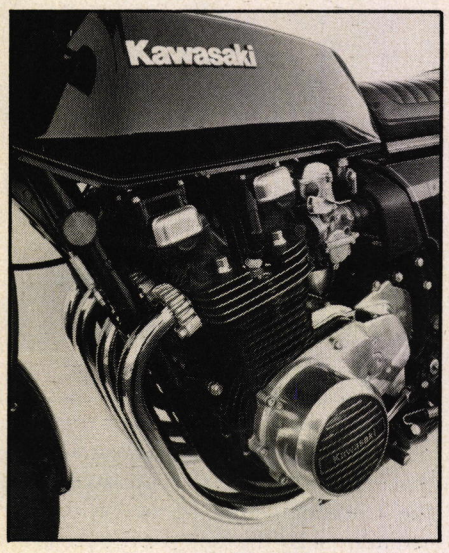
Continued

PHOTOGRAPHY: DAVID CLARK



Bullet-nose fairing for a sharpshooter

Hollowpoint and on-target cornering.



Updated engine for the new decade

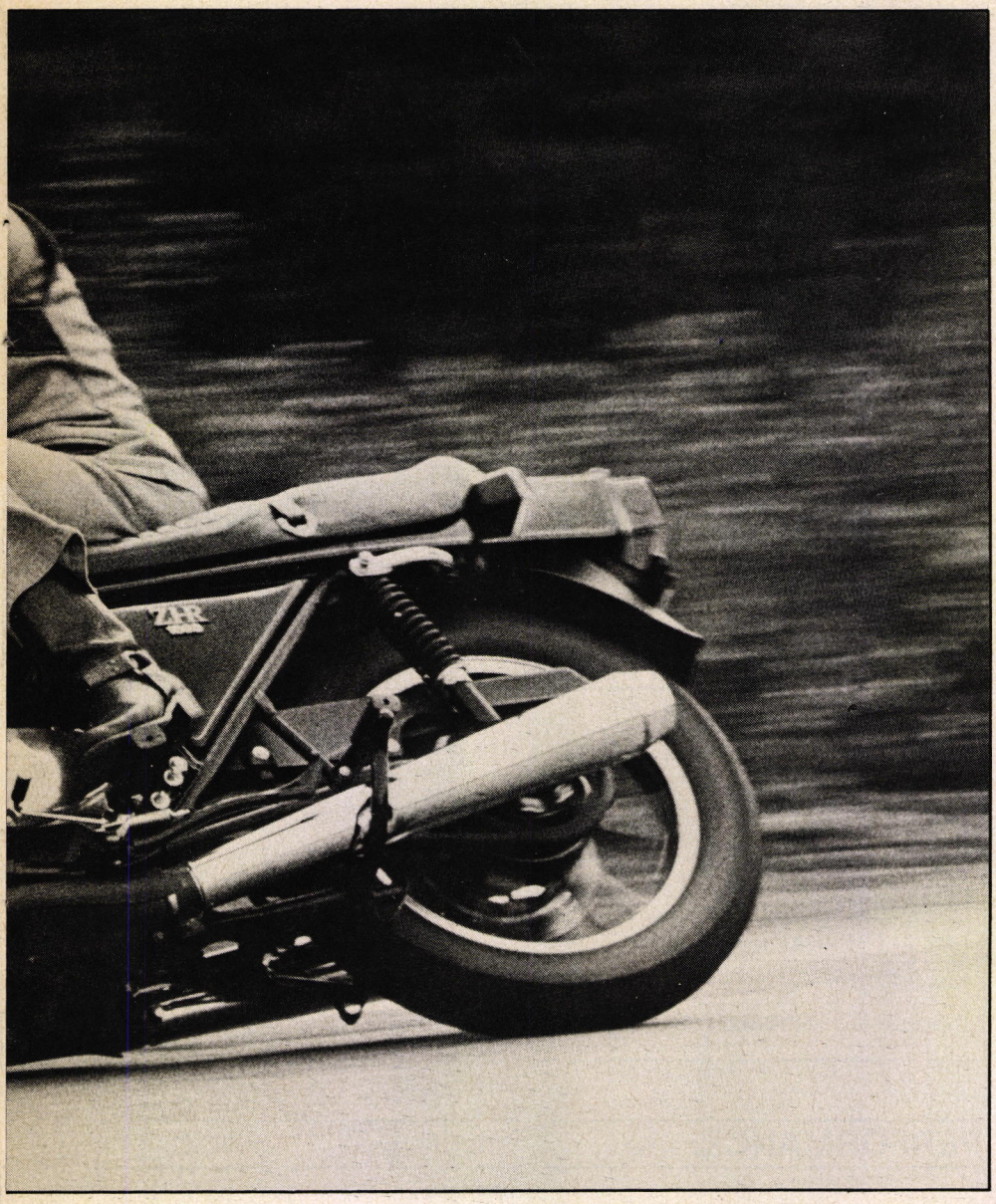
Not a power failure, but a black out.

the carbon monoxide and unburned hydrocarbons in the exhaust gases. This year the air-emissions gear is supplemented by an EPA-mandated preset air screw that cannot be adjusted for better response off-idle except by an authorized mechanic, who drills out the plug to retap and set the screw. Furthermore, the jet needles in the carburetors have but a single notch, eliminating the possibility of adjusting part-throttle response as well. In total, these changes mean that the Z1-R requires the choke in order to run cleanly during the first five minutes of operation after a cold start.

Once your morning warm-up is completed, though, the Kawasaki engine delivers all the tractability and responsiveness Z-1 motors have been noted for. It doesn't matter what gear you're in or what rpm the tachometer registers, all you have to do is twist the right grip and things happen quickly inside the engine. As the telephone poles streak by and you tuck behind the smoked windscreen of the fairing, you soon dismiss the possibility that the EPA might someday be able to outwit Kawasaki's engineers and hobble the fabled Z-1 engine.

To reinforce the sensations of speed the Kawasaki 1000cc four-cylinder produces, the Z1-R's final-drive gearing has been changed from the original. Like last year's MkII and the original Z-1, the rear sprocket carries two more teeth for a final drive ratio of 2.33:1. The shorter gearing reduces quarter-mile times and increases the amount of power available at any road speed. More engine rpm per mph might have been expected to hurt the Z1-R in terms of either engine vibration or fuel mileage, but the Z1-R cruises with nearly Suzuki-like smoothness and consistently pumps out more mpg than either the 1979 MkII or the 1978 Z1-R.

The Z1-R's powertrain deserves brakes with an equally impressive high-performance character, and it's got them. The Z1-R has better brake response than a standard KZ1000, as a matter of fact, thanks to a less-sensitive brake lever. Kawasaki brakes in general make the transition from full-effectiveness to lock-up very suddenly. But the Z1-R won't do that unless you squeeze the front brake lever with both hands. The explanation lies with a cable-operated master cylinder. Because there isn't room for it on the right handlebar under the fairing, the master cylinder is attached to the left fork tube between the triple clamps. A cable runs from the brake lever (which is too far from the grip for me) to the master cylinder, which in turn operates the dual discs. Some riders prefer this desensitized system because they have more freedom to use the front brake while diving deep into the turns. And they don't have to be fearful of inadvertently locking up the front brakes and landing on their head.



It used to be that the Z1-R was the perfect selection for *short* rides because the hard seat made you butt-sore and the small, 3.9-gallon gas tank ran dry every 120 miles. The seat on the new Z1-R has been reshaped and repadded, but you won't want to spend more than an hour in the saddle even so. Still, if you can get used to it, the new gas tank has a gallon more capacity so you can ride nearly 200 miles without a pitstop for fuel.

There's no question the speed-styled Z1-R offers you more thrills and more comfort than ever before. Image bikes like this one have to offer you a lot more, too, to justify premium prices. The Z1-R delivers. First of all, the turn signals have two modes of operation, manual and automatic, making them the best I've used. The halogen headlight is stronger than that of a KZ1000. And at last, the Z1-R has V-rated tires consistent with the bike's top-speed capability (although they grip indifferently). The shape of the sidestand and location of the footpegs deliver more ground clearance in the corners than before. All of these modifications and features add up to an improved motorcycle while reinforcing the prestige personality of the Z1-R.

Taken as a whole, these changes define the new Z1-R as serious competition for the Suzuki GS1000S in the bid for riders who want Euro-style flash. In addition, the bike's combination of distinctive looks, exclusive features and KZ1000 performance will convince riders of even ordinary Z-1s to upgrade their mounts.

Still, the new Z1-R will find its warmest welcome among those who appreciate refined lines in styling as well as in the corners. For even if they prefer to hide their cravings under the plastic mask of a sleek quarter-fairing, they're still likely to be persuaded by horsepower that comes in large lump sums. •

Ride Review

• The original Z1-R drove me wild—with frustration. Its speediness was skin-deep, disguising an engine that vibrated like a refugee from a wrecking yard and a back-breaking ride. And it was worth your shorts to scratch for the limit in the corners.

Kawasaki's new Z1-R isn't the same motorcycle at all. It functions with the same grace as the current KZ1000, proving that a bike doesn't have to be nasty to deserve a high-performance image.

With its newly legitimate hyperbike status, the Z1-R finally has come together for me. I like the styling, I like the turbo fan noise from the engine, but most of all I like riding a bike that hasn't been tailored for the median motorcyclist. When I'm in this bike's saddle, it's clear that I demand a little bit more from a bike than the average guy. And with the new Z1-R, I get a little bit more, too. —*Michael Jordan*

• Mechanically, Kawasaki has made all of the right moves with the Z1-R, from updating the chassis of this "orphan" of the KZ1000 line to assigning it less-primitive steering. With that sort of technological first aid, the Z1-R finally is as sporty in performance as it has been in appearance.

Cosmetically, though, I wish that the original styling had been left alone. I'm aware that the bigger gas tank extends what was a ridiculously short range on the previous R-model, and I know that all-black motorcycles are extremely popular these days. But I liked the bike's proportions better with the smaller gas tank and the four-into-one exhaust system. And although there are numerous motorcycles that look elegant in black, this isn't one of them. Personally, give me a silver 1978 Z1-R anytime—with, of course, all of the 1980 goodies stuffed beneath it. —*Paul Dean*

• Marketing experts opine that a black street bike will arouse far more interest than the same bike painted in another color. Consequently, a lot more superbike buyers should be queuing up at Kawasaki dealerships to get their hands on the new dark-horse Z1-R. And this year, the MkII-derived package they'll get will come closer to fulfilling their performance expectations.

The last Z1-R we tested would have satisfied only a profiler. In comparing the old model to the other manufacturer's flagship superbikes, the silver Z1-R ended up with the label "Penalty Box." It deserved it. That Kawasaki was a single-purpose café showbike that made only a weak pretense at handling.

That situation has changed. This new-generation model marks the first time that the Z1-R's promise of performance is not a hollow one. —*Larry Works*

Continued

Kawasaki Z1-R

SPECIFICATIONS:

IMPORTER: Kawasaki Motor Corporation
2009 East Edinger Avenue
Santa Ana, California 92711

CATEGORY: street

SUGGESTED RETAIL PRICE: $3699

ENGINE

Type ..... four-stroke transverse vertical four
Valve arrangement ..... double overhead camshafts
Bore and stroke ..... 70.0mm x 66.0mm
Displacement 1015.9cc
Compression ratio 8.7:1
Carburetion ..... four 28mm Mikuni slide/needle, one accelerator pump
Air filter ..... washable gauze element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... transistorized breakerless, battery/dual magnetic pickup/dual coil
Charging system ..... 12 volt; alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive ..... straight-cut gears
Primary drive ratio 1.73:1
Clutch ..... wet, multi-plate
Final drive type ..... #630 chain (¾-in. pitch, ⅜-in. width)
Final drive 17/35: 2.33:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	3.17	12.79	5.9
II	2.19	8.84	8.5
III	1.67	6.73	11.2
IV	1.38	5.58	13.5
V	1.22	4.92	15.3

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... 36mm stanchion tube diameter/5.3 in. (135mm)
Rear ..... 5-way adjustable spring preload/4.8 in. (122mm)

BRAKES

Front ..... dual single-action hydraulic calipers, 9.8-in. (250mm) discs
Rear ..... single-action hydraulic caliper, 9.8-in. (250mm) disc

TIRES

Front ..... 3.25V19 Dunlop Gold Seal F6
Rear ..... 4.00V18 Dunlop Gold Seal K87

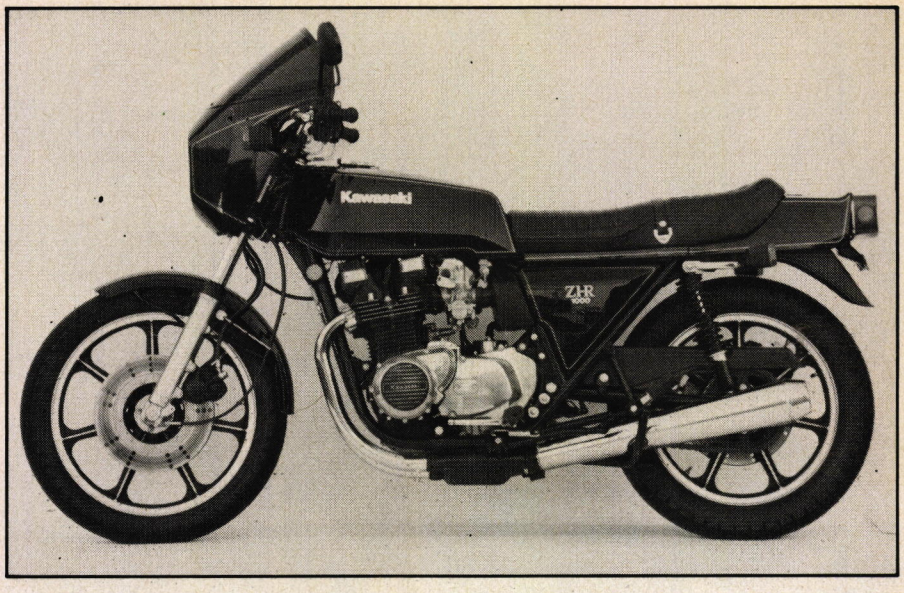
DIMENSIONS AND CAPACITIES

Weight ..... 552 lbs. (250kg)
Weight distribution ..... 49% front, 51% rear
Gross vehicle weight rating ..... 945 lbs. (429kg)
Wheelbase ..... 58.0 to 59.5 in. (147.3 to 150.1cm)
Seat height ..... 33.0 in. (838mm)
Handlebar width ..... 29.0 in. (737mm)
Footpeg height ..... 12.8 in. (325mm)
Ground clearance .... 5.8 in. (147mm), at right power chamber
Steering head angle ..... 26.0 degrees from vertical
Front wheel trail ..... 4.0 in. (101mm)
Frame ..... tubular mild steel, double front downtubes
Oil capacity ..... 3.9 qt. (3.7/)
Fuel tank ..... steel, 5.4 gal. (20.3/), including 1.2 gal. (4.6/) reserve
Instrumentation ..... tachometer, speedometer, odometer, tripmeter resettable to zero, voltmeter, fuel gauge

PERFORMANCE

Fuel consumption ..... 35 to 47.5 mpg (14.9 to 20.2km/l)
Range, maximum ..... 189 to 256.5 miles (302 to 412.7km)
Range, reserve only ..... 42 to 57 miles (67 to 92km)
Speedometer error, 30 mph indicated ..... 30 mph actual
Speedometer error, 60 mph indicated ..... 58 mph actual
Best ¼-mile acceleration .... 12.24 sec., 110.6 mph (178 kph)
Top speed (calculated) ..... 130 mph (209 kph)
Stopping distance from 30 mph ..... 29 ft. (8.8m)
Stopping distance from 60 mph ..... 131 ft. (39.9m)

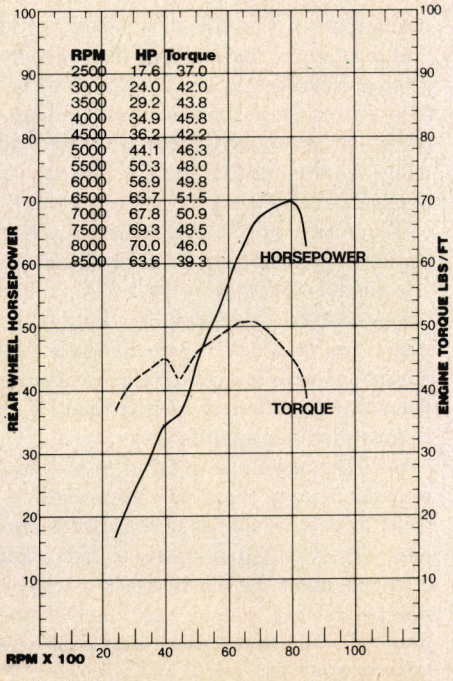
All weights and measurements are taken with machine unladen and fuel tank empty.

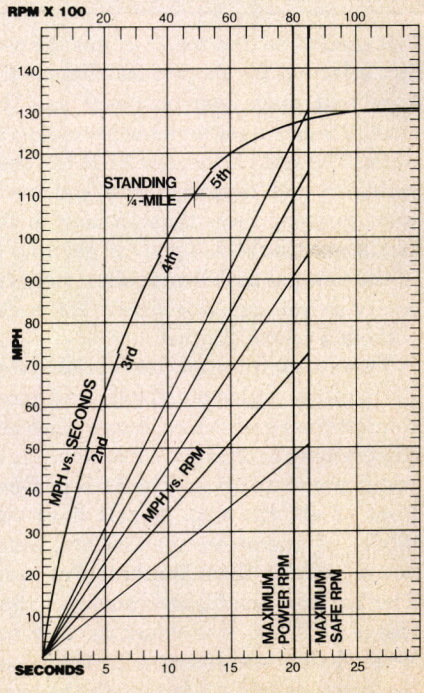


COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Kawasaki Z1-R	12.24/110.6	130	552	131
Suzuki GS1000S	12.43/110.0	132	539	124
Ducati Darmah	13.41/97.50	118	487	120
Laverda 1200 Jota	12.54/105.0	121	518	145
Honda CB750F	12.41/106.8	128	524	135
Kawasaki KZ1000 MkII	12.06/110.3	130	545	129

PERFORMANCE:





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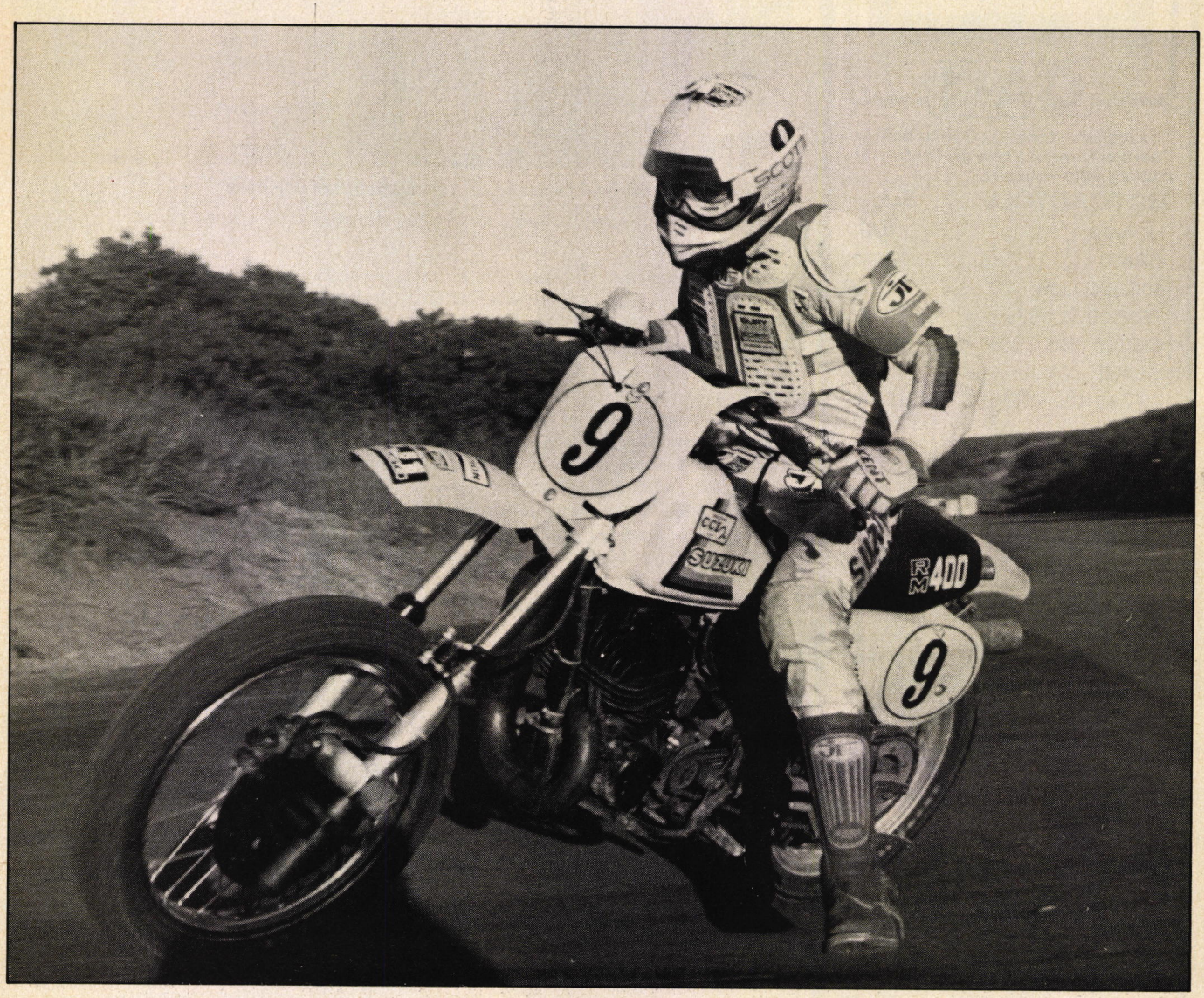

PHOTOGRAPHY: TERRY WHYTAL

Battle of the Motorcycle All-Stars

Angling for big bucks and TV time at "The Superbikers."

• ABC Television didn't exactly build its Superbikers event, held at California's Carlsbad Raceway in early December, upon the things that have made motorcycle racing great. Duels between Heikki Mikkola and Brad Lackey just weren't exciting enough. Steve Eklund and Jay Springsteen hooking handlebars at 100 mph seemed a tad esoteric. No, what ABC really wanted was a confrontation of motorcycle racing's biggest stars—from flattrack, motocross, roadracing and speedway—on a single track combining dirt and pavement.

The Superbiker's event easily could have failed. It showed the same brand of thinking that has given us the Battle of the NFL Cheerleaders and the Guinness Game. Promoters Gavin Trippe and Bruce Cox had only a month to prepare a track unlike any ever built. The racers could have dismissed the event with the same race-weary attitude that had killed the Motorcycle Olympiad of 1977–1978. But as it turned out, a real race went down and some real things about motorcycle racers were learned.

The track itself measured about two miles, half dirt and half pavement. Carlsbad's dragstrip was linked with a flattrack section incorporating a TT jump and then to a tighter

Continued

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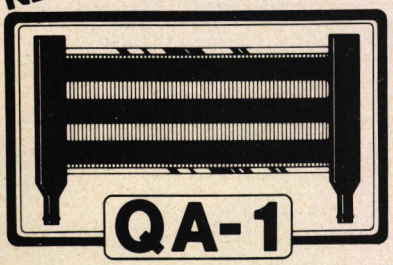

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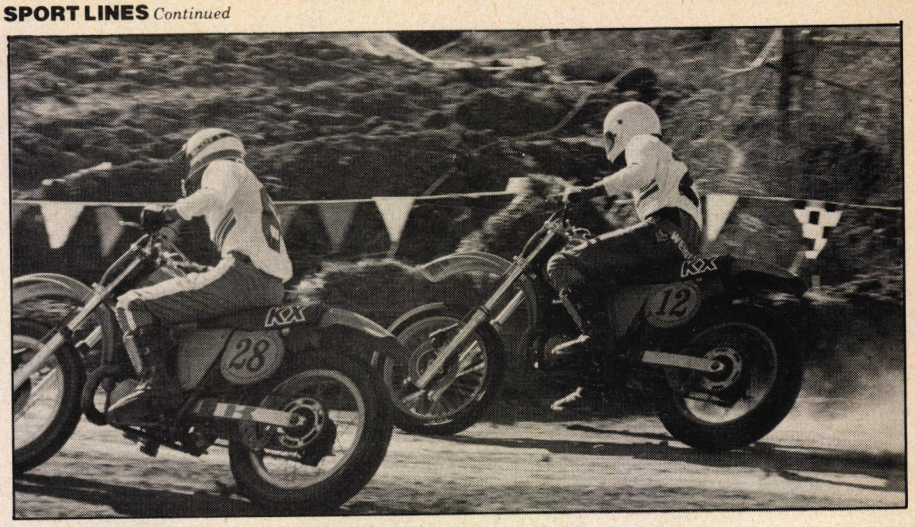


Weinert (12) battles Reid for the line in a confrontation of Uni-Traks

Specialized equipment includes disc brakes, dirttrack tires, street helmet.

motocross section without berms. The format followed flattrack practice with a series of heats and semis to qualify riders for the main event. The first heats featured riders competing against others in the same discipline. But from that point on, all bets were off.

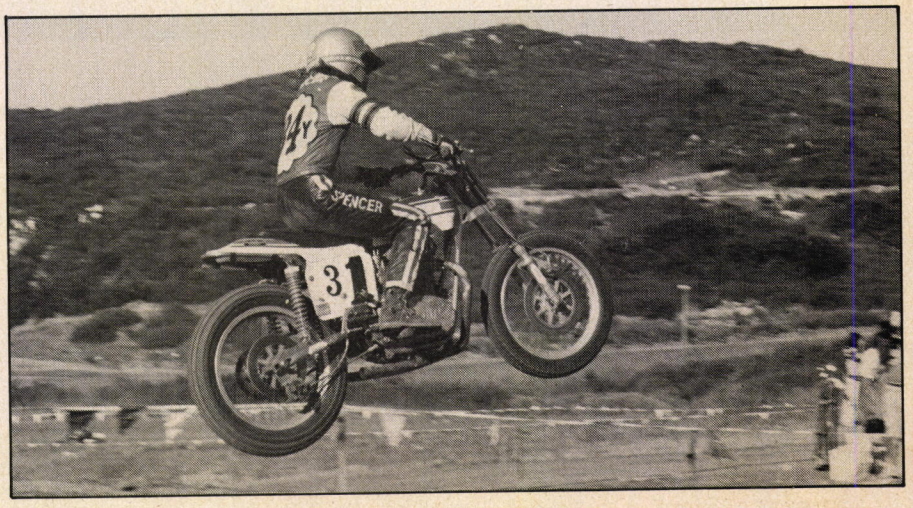
Television money insured that the entry list would be impressive. Three World Champions were included, Kenny Roberts (500cc GP roadracing), Peter Collins (speedway) and Hakan Carlqvist (250cc GP motocross). National No. 1 Steve Eklund attended, as did desert ace Larry Roeseler and Trans-USA winner Kent Howerton. Even a casual follower of motorcycle racing would recognize all of the names that filled out the 40-rider field.

Practice began a week before the event and it soon became apparent that the track favored TT bikes. Dirttrack and roadracing competitors selected four-stroke singles mounted in standard TT frames. Mike Kidd decided to ride a Triumph twin with laid-down shocks. The motocross aces from Kawasaki and Suzuki sized up the situation, went back to their race shops and returned with big-bore MX bikes sporting 105-mph gearing, front disc brakes and Goodyear DT2 flattrack tires.

A week of practice was just enough to insure that all the racers could turn competitive lap times. But it proved a day too long for Kenny Roberts. He had begun clocking incredibly quick lap times and clearly looked like the favorite. On the last day of practice though, his Yamaha spat him off into a guard rail and Roberts spent raceday as a commentator instead of a competitor.

As the heats shook out, Howerton and Kidd had the edge on the field, winning their heats with the quickest lap times. Kidd commented, "It's a neat track and pretty fair for everyone. More fair than I thought it would be." The final event had 12 riders with motocross or desert backgrounds, 13 racers used to going sideways, and one roadracer, David Emde.

Kawasaki rider Jeff Ward took the holeshot, surrounded by a pack of motocrossers and Mike Kidd. When Kidd laid it down in Turn Five, the race became a motocross benefit. Warren Reid passed his Kawasaki teammate Ward for the lead, but Howerton pushed his Suzuki past both of them. Photographer Ron Hussey noted that when Reid came past the pits hard on Howerton's fender, the Kawasaki pit hung out a sign that said "Boss says $20,000 for a win." Hussey says Reid's eyes grew to the size of silver dollars and he scorched past the Suzuki immediately. Clearly, national television was a big deal. Unfortunately, Reid couldn't hang on,



Eklund in MX gear

Upholding flattracker honor.

and he fell. Howerton went on to win, while Ward and Weinert argued over second with the nod going to the Jammer. A determined Steve Eklund worked his way up to fourth, the only non-motocrosser to get near the front. Reid remounted to finish fifth.

The showdown between motocross, speedway, flattrack and pavement racers left the MX camp smiling and basking in the attention of the ABC cameras. Weinert boasted loudly of the superiority of motocross racers while Howerton observed, "The TT guys should have had the advantage; they know how to slide and they're used to the tires and higher speeds. But motocrossers are better all-around riders. The race was pretty long, too, and motocrossers are in better shape."

In the beginning, ABC's concept for the Superbikers seemed pretty flimsy. Speedway riders and roadracers indeed are both motorcycle racers. But then a combine operator in Iowa and man harvesting tea in Sri Lanka are both farmers. Even so, the Superbikers proved to be a great leveler, just as all similar all-star events are. No championship was on the line, yet when the green flag drops, a racer is a racer. He wants to be the first at the finish. Take away the cameras, and the riders at Carlsbad would still be Superbikers.

—*Terry Whytal*

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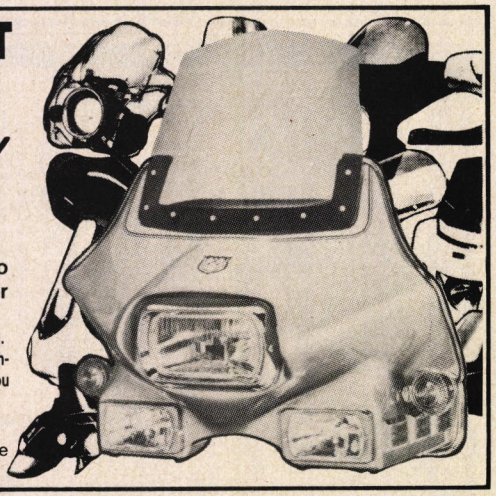

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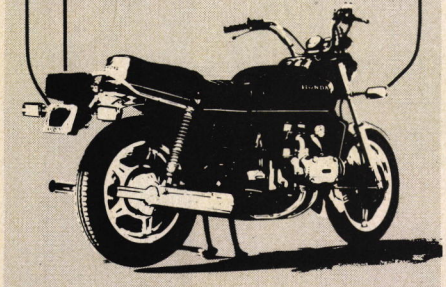

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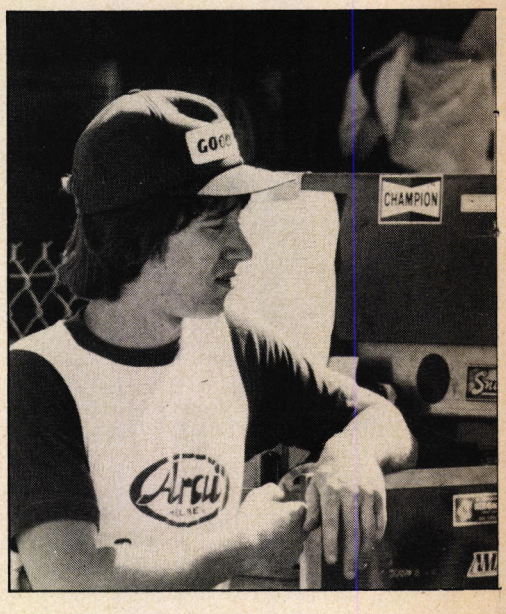
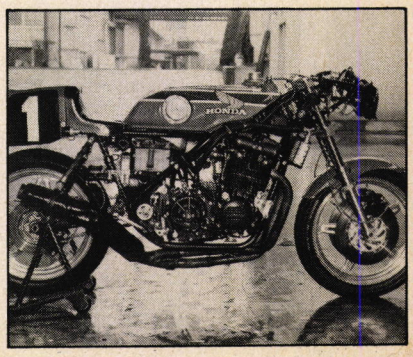
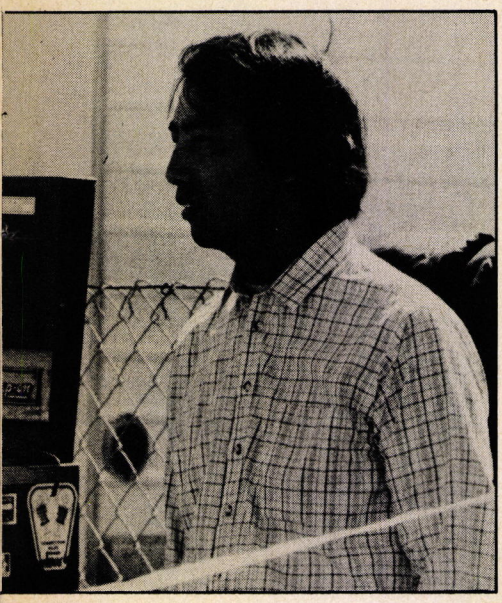


• Honda's born-again roadracing program for 1980 will include Freddie Spencer, who will ride a CB750F-based bike in AMA Superbike events. If Honda appears with a bike for the AMA's new Formula 1 class, Spencer will ride it as well. Though Spencer and tuner Erv Kanemoto continue to speak of involvement with 250 class road-racing in Europe, Honda will not support it and the pair's plans are still unconfirmed. It's unknown what impact this major pavement program will have on Spencer's dirttrack ambitions.

• Other Honda news reveals that Minolta Cameras will back the all-conquering Honda France endurance racing team. A three-bike entry including the productive partnership of Leon and Charmain will compete in all nine endurance championship events and the Le Mans 24-Hour.

• Sixteen international roadracers met in Belgium during December to form the Professional Riders Association. All but Wil Hartog also signed an agreement calling for a $100,000 penalty to be assessed against any rider competing in an FIM GP race during 1980 at specified tracks (considered dangerous) in Venezuela, Finland, West



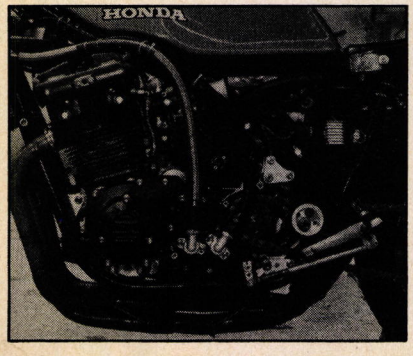


Germany, Czechoslovakia or Belgium. Kenny Roberts, Barry Sheene, Randy Mamola, Virginio Ferrari, Franco Uncini, Boet Van Dulmen and Christian Sarron were among the riders to sign the agreement.

It's unknown how binding this newsworthy agreement will prove, however, because only four tracks so far have announced plans to present World Series roadraces during 1980.

• Kawasaki has finally announced that its long-awaited 500cc GP roadracer will see action at the end of the 1980 season. Meanwhile, Yamaha has denied reports that its experimental V-4 GP racer will reach the track during 1980.

• The FIM has responded to news of the Professional Riders Association and the proposed boycott of several GP events by breaking off negotiations with the World Series organization. Its most recent release concludes with the comment, "The President (of the FIM) Mr. Rodil Del Valle therefore feels obliged to draw the attention of all national federations to the fact that they must not accept any contact with persons connected with the World Series." •



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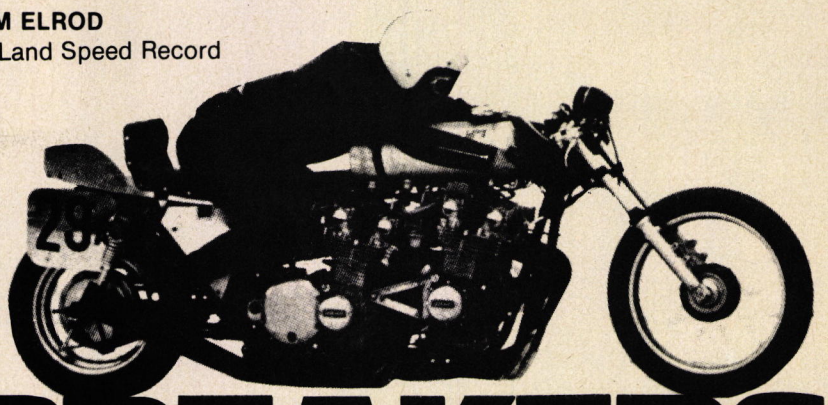

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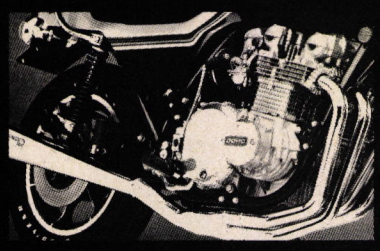

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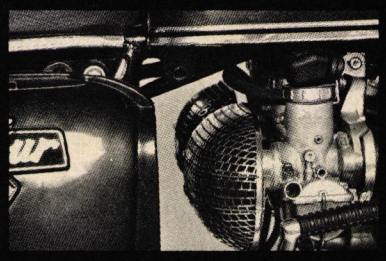

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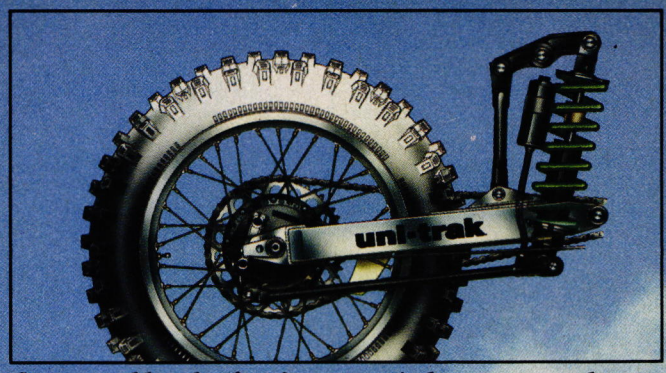

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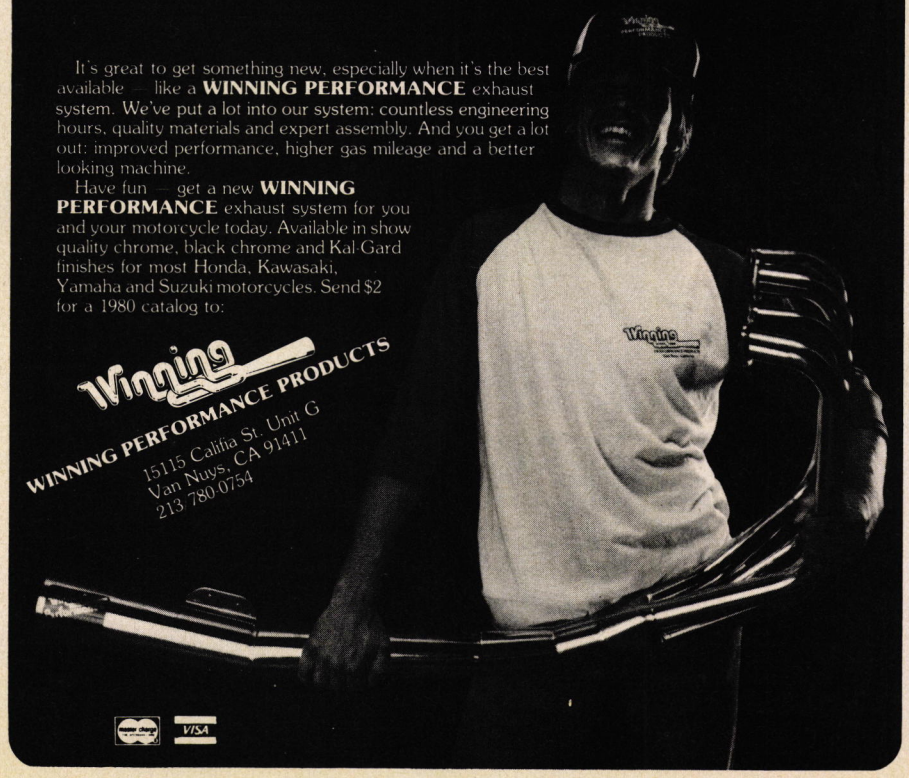


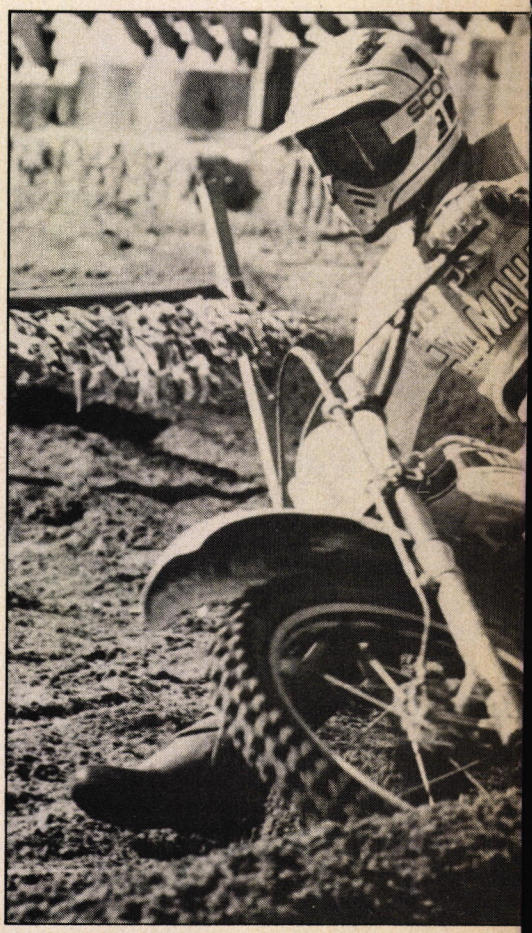
MOTOCROSS:

Prototype vs. Stock

Hey Hurricane, wanna trade?

• Bob Hannah surprised everyone at the start of the '78 racing season by riding a stock YZ250 in the Florida Winter-AMA season. Despite pressure from Team Yamaha management, Hannah continued to race and win on a production bike. Hannah said, "The bike is so good and easy to ride that all we did was work on the monoshock a little. I like it better than the factory bikes." Once again Hannah had destroyed a popular motocross myth, this time by proving that factory bikes aren't necessarily invincible on the racetrack.

Perhaps the term factory bike is somewhat misleading since the motorcycles that contracted riders race are actually prototypes. By definition a prototype is only a model, a test bed for ideas, an unrefined version of a production bike. Team Suzuki manager Mark Blackwell points out, "Once or twice a year the guys



Hannah and Yamaha at work

"Works" doesn't work like production.

will all want to ride production bikes. We'll be having problems with some of the experimental components and the riders will think they can race better on a stock bike. Part of their job, though, is to help develop new bikes, not just race the old ones."

The riders realize this is true since most contracts spell it out, but nonetheless some are tired of the hassles. Warren Reid, former Team Honda rider now with Kawasaki, says, "I'm really tired of doing constant R&D work. I want to ride a bike that's got a proven design and already has the capability of winning. Then I can just concentrate on setting the bike up for me to win races."

Yamaha rider Mike Bell comments, "It's really nice to get to the racetrack and know everything is right and nothing needs to be tested. You know the bike is right and the mechanic has done his job and all you have to worry about is yourself."

Perhaps if you think factory riders have all the advantages, you should stop for a moment and consider who really does the work that makes the bikes you buy so much better each year. And if you feel sorry for the big-time racers, perhaps you should ride your stock bike up to the next factory rider you see and offer to trade. *—Terry Whytal*

Continued

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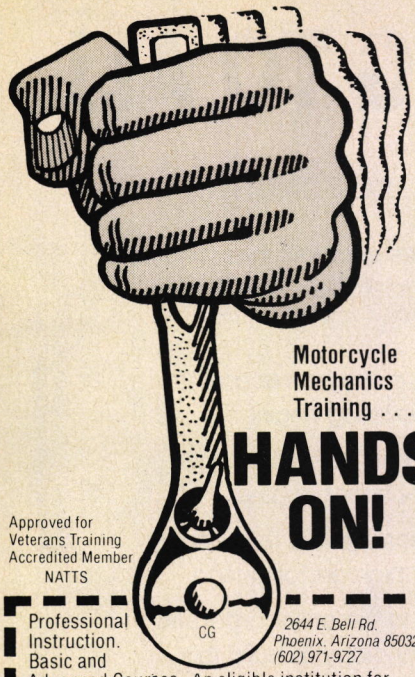

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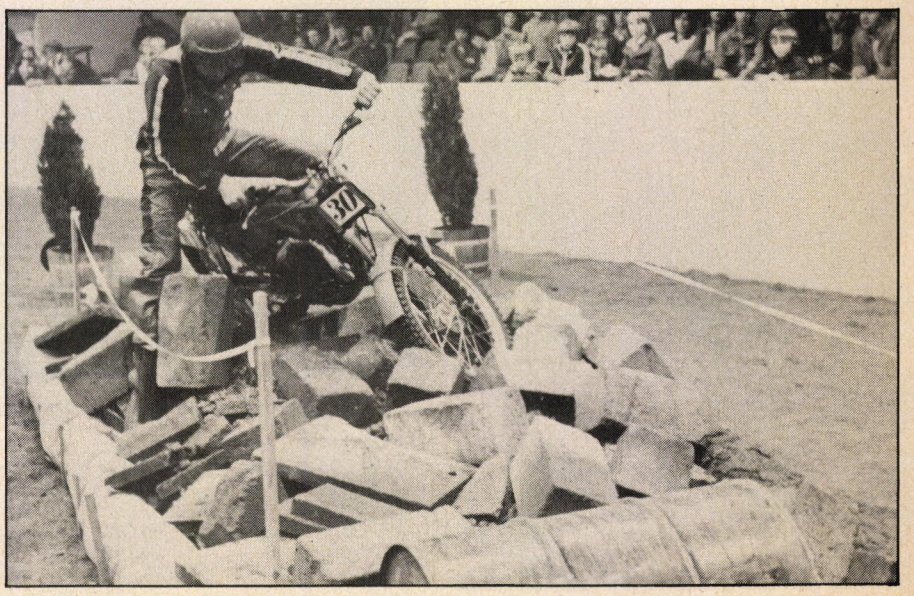
Circus Riding

Turning trials riders into stunt riders.

• Last July thousands of people hooted and hollered as Suzuki's Mark Barnett mastered Goodwin's Gorge, the Grand Tetons and the Toyota Tower at the Superbowl of Motocross in the Los Angeles Coliseum. Network television couldn't have cared less. *Sports Illustrated* couldn't spare a sentence.

Yet in that same month, another form of stadium motorsports became a three-segment miniseries on British television and finished ninth in the national ratings. What was it? Stadium trials, a sport that several foreign nations have nurtured enthusiastically. Just as with American stadiumcross, spectators can see every bit of this indoor offshoot of observed trials without leaving their comfortable seats. The action finds the world's best trialsmen tackling an odd amalgam of challenges that would have Jules Verne scratching his head.

Obviously, the sections are man-made. The traditionalists are turned off by their artificial nature, yet the European go-slow-for-dough shows offer an assortment of visually stimulating tests. Logs are piled and skewed at weird angles. Jumbled tangles of tractor tires bounce and toss a bike and rider precariously off-balance. Elevated logs demand that riders hop up and ride their length. Huge oil drums block forward progress. Steel water tanks douse straining engines. Log pyramids beckon the riders 20 feet into the air. Volkswagens beg to be climbed.



A dab in the garbage heap

More comedy than Monty Python.

As might be expected, those riders with finesse and flair—circus riders as the English call them—are the most successful stadium trials riders. So naturally the most successful rider in Europe's stadium trials last year happened to be American Bernie Schreiber. The 1979 World Champion triumphed in all three stadium events he entered. And unlike the world championship trials events, the stadium tests actually paid prize money.

Schreiber first triumphed in a Spanish stadium event sponsored by *Solo Moto,* a Spanish weekly motorcycle magazine. He missed the next round in France because of a schedule conflict. But in July, Schreiber appeared at the Kickstart Trial held at Donington Park in England. The roadrace circuit actually was closed to spectators to facilitate television coverage. Start money was about $220, and Schreiber ultimately received $1100 for winning the event.

The organizers structured the Kickstart Trial like equestrian dressage—the Olympic sport in which competitors must urge their horses over barricades and water jumps against the clock while simultaneously being evaluated for form. Sixteen riders were invited. Two eight-rider heats eliminated half of the entry. Each finalist assaulted the loop twice, forward and backward. Schreiber dropped only 20 points in the sections.

The next stadium trial was held at a soccer park near the Italian Riviera. It drew about 4000 people and paid $1000 to the winner. The emergence of the SWM factory as a trials power has stimulated interest in the sport and a six-round stadium trials circuit now is being planned for next year.

It's clear that despite the protestations of the traditionalists, stadium trials quietly is taking root on the continent. The riders might be skeptical of being paid as stunt riders, but one fact never leaves their minds: Stadium trials offer prize money as well as start money. The events on the world championship schedule do not. —*Len Weed*

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Evel Knievel at a walking pace.

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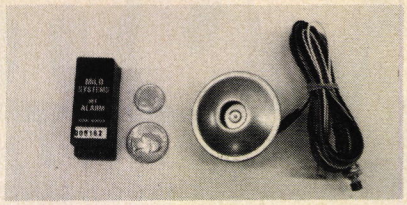

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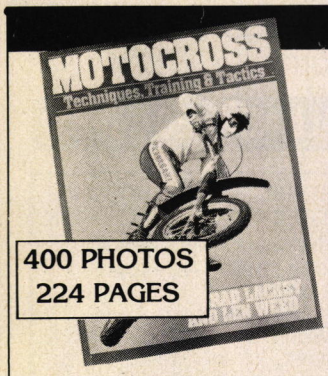

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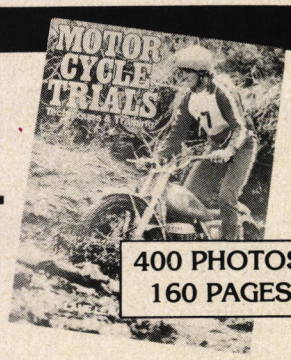

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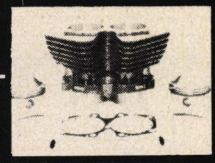

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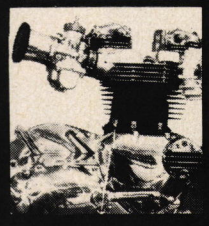

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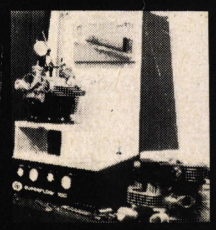

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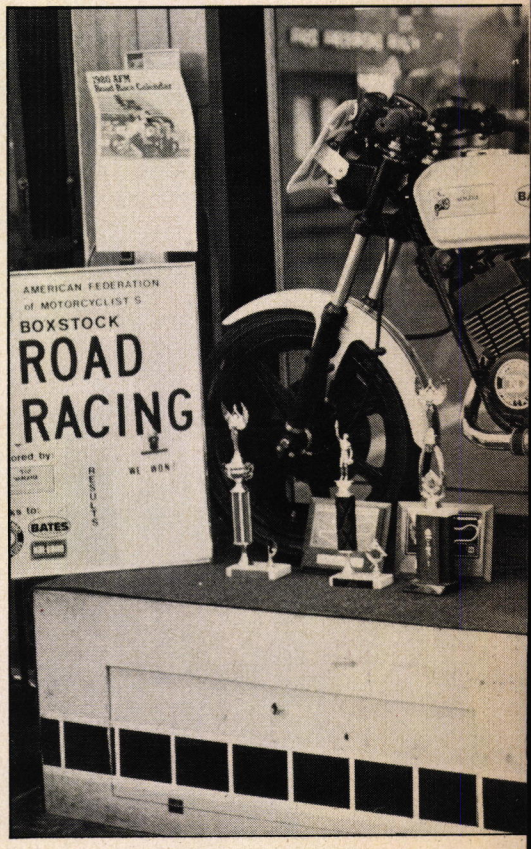
It takes more than a quick line and a hook to catch a sponsor.

• Kenny Roberts probably doesn't know what "racer's net" means. But to a club racer these two words often enough are synonymous with sponsorship. In short, racer's net is a discount price most motorcycle dealers charge certain racers for parts to their racing bikes. It's not a bona fide sponsorship program, but it's the next best thing.

You don't have to be a superstar to get racer's net from a dealer—but it helps. Actually, if you are a serious racer with the potential to win or put in a good showing, you probably can obtain racer's net from a dealer. Generally, what you get is a discount, like 10 to 30 percent off of the dealer's retail prices.

It isn't difficult to get a dealer involved in your race program if you approach him properly. One way is to use the Three R formula—Racing, Results and Resumé. All three are related, and if you organize them for a presentation, you can convince a dealer that you are a racer with a program worth investing in.



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The first of the three Rs is, of course, racing. You have to race in order to be sponsored. Your presentation should include the schedule of races in which you intend to compete throughout the year, giving the dealer an idea of your anticipated parts requirements.

If you have experience and you are a talented rider, then you should have results to show him, too. Clippings from motorcycle newspapers and club newsletters, as well as results sheets from race meetings all are helpful in filling the credibility gap (remember, the dealer is approached by other racers, or people who claim to be racers, so use results as your ticket into his office).

Once inside the dealer's office you have to make your sales pitch. That's where the resume becomes useful. Use your resumé as you would for a job interview, explaining who you are, what kind of motorcycle you race and what your intentions for the coming season are. As part of the resumé, include a budget for the entire race year, so the dealer knows that you are not only well-versed on race tracks, but that you know what it takes to get there.

By taking a basic, well-thought approach to this realistic goal, you stand a better chance of entering the race year with some sort of financial help. Done properly, it even could be your first step to a slot in the paddock next to Kenny Roberts. —*Dain Gingerelli*

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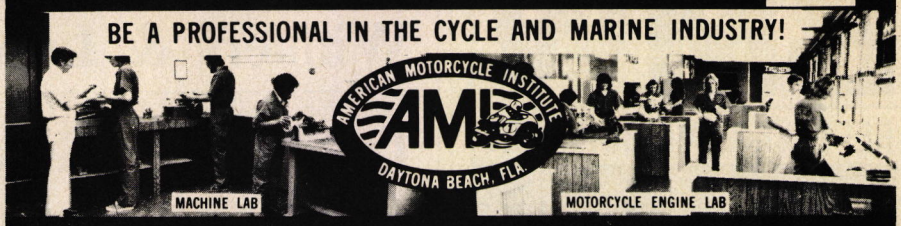

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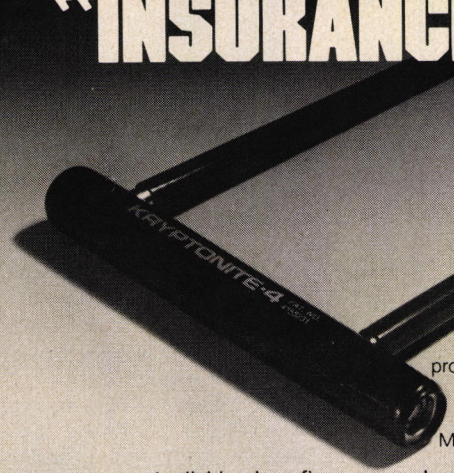

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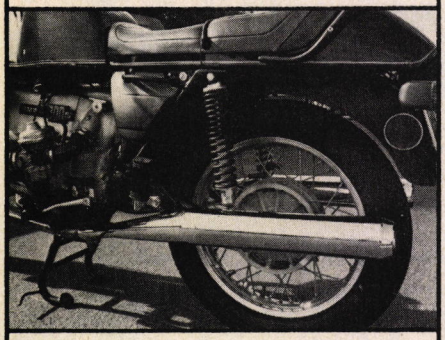

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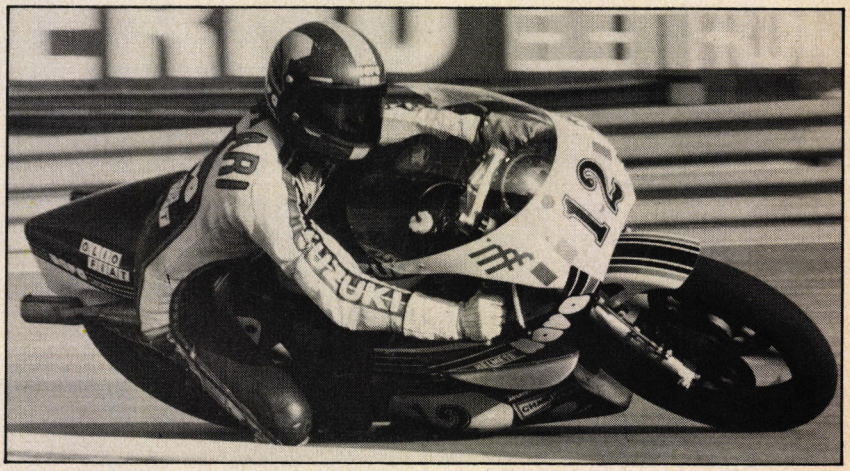


• When Kenny Roberts looked over his shoulder during the 1979 GP season, Virginio Ferrari was the rider he usually saw. Roberts regards this hard-nosed Italian as his fiercest competitor on the racetrack, although he is also KR's close friend. And according to the Italian newspapers, Ferrari is the next Giacomo Agostini.

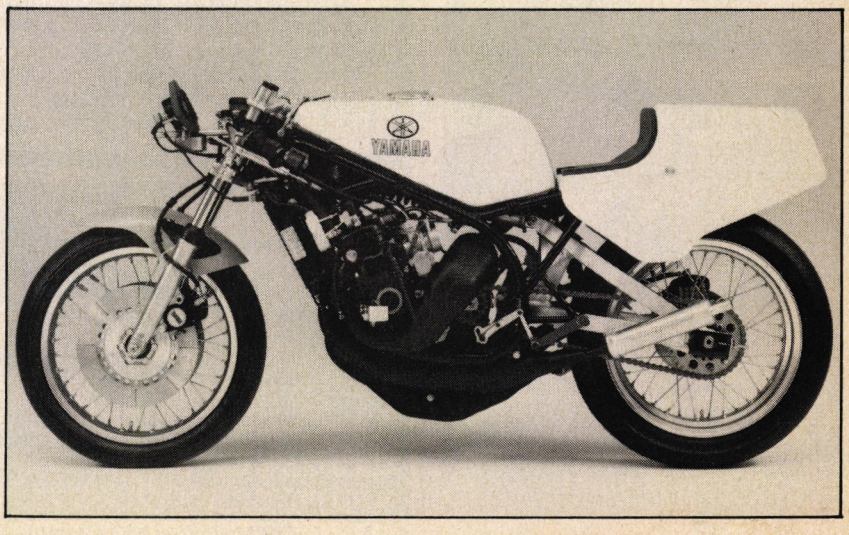
Ferrari's story begins when as a tough 17-year-old with a lower-middle-class background, he was arrested for riding his Maico 360 on the streets without a driver's license. The year was 1969.

He repeated the stunt four years later, riding a Honda 750 with open exhausts through traffic with a license plate tied on his back. Between the two incidents, though, Ferrari had entered three roadraces. But for one reason or another, he failed to make the start line for any of them. In his fourth and fifth tries, he started but failed to finish. One race was halted because of a multi-fatality accident on the first lap. In the other, he crashed. Twice.

In his sixth attempt at racing, Ferrari rode a Ducati 750 production racer to second place in Misano, Italy. It was August, 1973. Five years to the month and 72 races later, he won his first world championship event, riding Roberts and Sheene into submission in the concluding race of the 1978 season around the 174 curves of Germany's Nurburgring and setting a lap record.

In some circles, Ferrari is regarded as an overnight success. Yet his apprenticeship reveals seven first-place finishes, 10 seconds, three thirds and a 27th at Daytona in 1977 when he started the race two laps behind. And that's not to mention a seemingly unending string of DNFs, many caused by too little road at the wrong moment.

Indeed, Ferrari has earned a reputation



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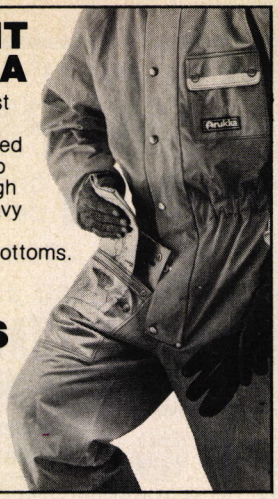

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as a crasher, and he admits to colliding violently with the scenery about 70 times so far. He's quick to explain, though. "With a better motorcycle, staying in front isn't all that hard," he says. "With an inferior bike, you make up the difference by trying harder, and it's easy to make a mistake when you have zero safety margin."

Running out of road has injured more than Ferrari's pride during his career. During practice in Brno, Czechoslovakia in 1977, Ferrari crashed and broke his jaw in two places, lost three front teeth, perforated his left eardrum and was knocked unconscious for 35 hours. But before dawn on raceday, he awoke, dressed himself and escaped from the hospital by scaling a 12-foot wall barehanded, making his way back to the track where he tried to get into the race.

These days Ferrari is a little wiser. After spending two weeks in the hospital in Le Mans, France after a crash in the final GP of the 1979 season while chasing Roberts for the championship crown, he accepted a lift home in an executive jet. This incident also marked a turning point in his career. He hooked up with a public relations manager who now will attempt to make him the Italian equivalent of Barry Sheene. Ferrari Design has already been formed to sell clothing.

More importantly, however, Ferrari has swept away the men and machinery that made him great. Suzuki, Nava, Olio Fiat and his former manager Gallina have been left behind. For 1980, Ferrari will be riding a Yamaha TZ500 for his new manager, Serge Zago. At the same time, though, Ferrari's fans in the Italian racing press have become skeptical. Ferrari, they mumble, may be Giacomo Agostini's heir, but he is not yet Agostini. No matter what he thinks.

As he jogs before breakfast, Ferrari shrugs his shoulders while his popularity ebbs. The tough kid clenches his fists, leans into the winter wind and doubles his effort. Persistence has taken him far, and it's too late to turn back. —*D.O. Cozzi*

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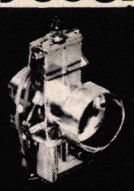

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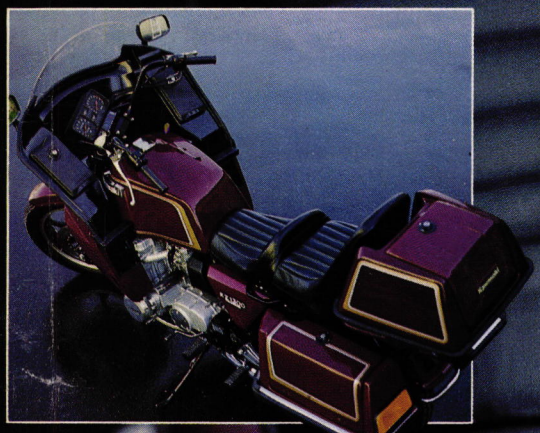

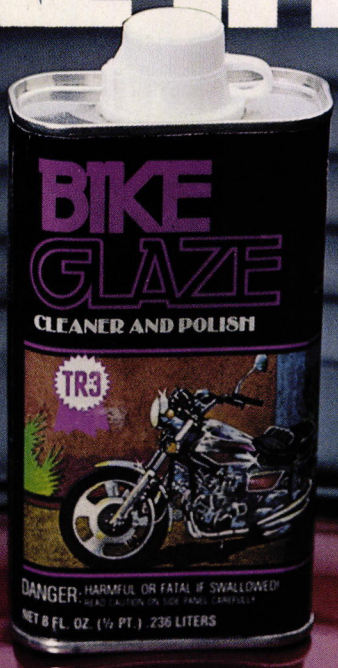

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